State of Wyoming

Department of Health

Annual Report on Cancer in Wyoming - 2017

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Director

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Department of Health

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Executive Summary

The incidence of and mortality rates from cancer in Wyoming residents were all lower than than the U. S. rates in 2017. The overall incidence rate for cancer in Wyoming was 399.6/100,000 in 2017, which was up slightly from 2016 (397.7/100,000), but still lower than the national rate (437.7/100,000). The overall mortality rate for all cancers in 2017 (135.1/100,000) was slightly lower than 2016 (140.3/100,000) and much lower than the national rate of 156.7/100,000.

The top five cancer sites for incidence in 2017 were: prostate, female breast, lung/bronchus, colorectal and melanoma. The most common cancers for incidence by age group were cancer of the testis (15-19); soft tissue including heart (20-24); thyroid (25-34); breast (35-54 years); prostate (55-70); lung (75-84); and breast (85+). There were three cases of melanoma in individuals under 30 years of age in 2017, with one case being diagnosed in a child between 10-14 years of age.

The top five cancer sites for mortality were lung, ill-defined, pancreas, colorectal, and breast cancer. The most common cancers associated with mortality by age group were colorectal (35-39); brain/CNS (40-44); breast (45-49); brain/CNS (50-54); and lung (55-85+). There were fewer than two deaths per cancer site for all age groups from 0 to 34 years. 2017 was the first time since at least 1990 that more people died from cancer of the pancreas than from colorectal cancer.

The 5-year (60 months) relative survival rate for Wyoming cancer patients diagnosed between 2010-2017 was 64.9%. This means that sixty-five percent of all cancer patients in Wyoming were alive five years after diagnosis during this time period. Cancer of the thyroid (95.5%), prostate cancer (94.7%) , breast cancer (88.5%), and bladder cancer (86.4%) have the highest survival rates among Wyoming residents. The survival rates for cancer of the pancreas (9.3%); lung cancer (15.8%); and brain/CNS cancer (25.1%) are the lowest among Wyoming residents. Children/adolescents (0-19 years) continue to have an excellent 5-year overall survival rate of 82.3% overall with soft tissue cancer including the heart (100%) and Hodgkin lymphoma (91.7%) having the best rates. Brain/CNS cancer (59.6%) while much better than adults, was still relatively low compared to the other rates for children.

INTRODUCTION

Cancer

Cancer is a group of diseases characterized by uncontrolled growth and spread of abnormal cells. If the spread of abnormal cells is not controlled, death can result. Many cancers are preventable and many can be cured if detected and treated early.

Causes of Cancer

Cancer is caused by both environmental and internal factors. Environmental causes include exposures to chemicals, radiation, or viruses, as well as exposures associated with lifestyles (e.g., smoking, diet, and alcohol consumption). Internal causes include hormone levels, immune status, and inherited conditions. Causal factors may act together or in sequence to start or promote cancer. Ten or more years often pass between carcinogenic exposures and detectable cancer.

Prevention

Avoiding potential exposures such as tobacco use, severe sun exposure, and excessive dietary fat may prevent the onset or promotion of cancer. Also, increasing beneficial practices such as eating five servings of fruit or vegetables every day may help to prevent cancer. Early detection and treatment of cancer through established screening practices such as mammography, and colorectal screenings improve the survival rates and decrease mortality.

Wyoming Cancer Surveillance Program

Cancer is a reportable disease in Wyoming. State statute requires that physicians, hospitals, and laboratories report all cases of cancer they diagnose or treat in Wyoming to the Cancer Surveillance Program (WCSP), which serves as the state's central cancer registry. The purpose of the registry is to gather data to determine cancer incidence, mortality, treatment, and survival in Wyoming. Through special interstate agreements, information on Wyoming residents diagnosed or treated in other states is included in the program's database.

Insuring accurate data is one of the most important roles of the cancer registry. The WCSP established procedures for both automated and manual methods of checking the quality of data. The data is stored in the Rocky Mountain Cancer Data Systems software which has a built-in system to immediately check data when a new case is entered into the database. Each case submitted is reviewed for accuracy and completeness in compliance with data collection standards from the National Program of Cancer Registries and the American College of Surgeons.

The data are used by a variety of health professionals and others concerned about cancer. Within the Wyoming Department of Health (WDH), the data are used to monitor early detection, to determine year-to-year trends that develop, and to determine how Wyoming compares to the rest of the nation. The WDH uses the data to plan and evaluate the effectiveness of its cancer control programs such as the Breast and Cervical Cancer Early Detection Program, and the Wyoming Colorectal Cancer Screening Program. Outside of the WDH, the data are used by physicians, hospital administrators, legislators, non-profit organizations, and the general public. Anyone with a concern about cancer or who would like more information about cancer in a community should call the Wyoming Cancer Surveillance Program's Epidemiologist at 307-777-8654. Written correspondence should be addressed to 6101 Yellowstone Rd., Suite 510, Cheyenne, WY 82002. Information is also available at: https://health.wyo.gov/publichealth/chronic-disease-and-maternal-child-health-epidemiology-unit/cancer-surveillance/

METHODOLOGY and DEFINITIONS

Data Sources

Incidence

Definition -- Incidence is defined as the number of *new* cases diagnosed during a set time period in a defined population. Incidence is not a representation of risk. The defined time period for this report is 2017 except for the 12-year incidence trend, which used 3-year averages (e.g., 2001-2003 for 2002 or 2005-2007 for 2006). The defined population is the state of Wyoming, Wyoming counties, and Cancer Health Districts (CHD) (see page 13).

Wyoming Data -- The Wyoming Cancer Surveillance Program (WCSP) gathers data on Wyoming residents diagnosed and treated for invasive and in situ tumors. The data is sent to the program's registry by every hospital in the state. Data are also collected from pathology laboratories, clinics, and physician offices throughout the state. The registry has several data exchange agreements with other state registries to enable collection of data on Wyoming residents diagnosed and/or treated outside of Wyoming. Wyoming data for this report includes 2017 cancer cases among Wyoming residents received by WCSP as of June 1, 2019.

National Data -- The National Cancer Institute (NCI) updates cancer statistics annually in a publication called the Surveillance, Epidemiology, and End Results (SEER) Cancer Review, also available on-line. NCI monitors cancer statistics to assess progress and to identify population subgroups and geographic areas where cancer control efforts need to be concentrated. Cancer incidence rates are calculated using SEER software. WCSP used SEER*STAT for this report. **The national SEER rates presented in this report were calculated using 2016 data for whites.** See Appendix A for reference source.

Mortality

Definition -- Mortality is defined as the number of persons who have died during a set time period in a defined population. The time period for this report is the calendar year 2017 for Wyoming rates. The defined population is the state of Wyoming, Wyoming counties, and Cancer Health Districts (see page 13).

Wyoming Data -- Mortality data are derived from death certificates filed with Wyoming Vital Statistics Services. By state statute, the certification of the cause of death on the death certificate is completed by the attending physician or by the coroner with the assistance of a physician. Although a number of medical conditions may be listed on the certificate, statistics presented here are based solely on the underlying cause of death. This is defined as the disease or injury that initiated the sequence of events leading directly to death or as the circumstances of the accident or violence that produced the fatal injury. The primary underlying cause is selected and classified based upon the regulations of the World Health Organization.

National Data -- The National Center for Health Statistics (NCHS), a division of the U.S. Centers for Disease Control and Prevention (CDC), provides statistical information including the number of cancer deaths in the United States. United States cancer mortality data is available from SEER*STAT, an interactive CD-ROM. WCSP used SEER*STAT for this report. **The national SEER rates presented in this report were calculated using 2016 data for whites.** See Appendix A for reference source.

Population

Wyoming Data -- Population estimates for Wyoming state and counties were obtained from the Centers for Disease Control and Prevention (CDC) Wonder website for Bridged-Race Population Estimates for 2017. Population numbers were broken down by county, age-group, sex, race, and ethnicity. Because cancer rates are calculated by dividing the number of cancer cases by a census-generated denominator, rates can be heavily influenced by changes or uncertainties in census counts.

Rates

Age-Adjusted Incidence Rates

Incidence rates include 2017 invasive cases among Wyoming residents, except for bladder cancer which also includes in situ cases. Incidence rates presented are calculated for total cases and separately for males and females. The incidence rates are age-adjusted to the 2000 U.S. standard population using nineteen age groups, and are per 100,000 population. Age-adjustment allows rates to be compared over different time frames and allows rates from one geographic area to be compared with rates from another geographic area that may have differences in age distributions. Any observed differences in age -adjusted incidence rates are not due to differing age structures.

In conformity with the National Cancer Institute's Surveillance, Epidemiology, and End Results (SEER) Program guidelines, the incidence rates excluded the following:

- in situ cases (except bladder cancer)
- basal and squamous cell skin cancer
- cases with unknown age
- cases with unknown gender

Age-Adjusted Mortality Rates

Mortality rates presented are calculated for total cases and separately for males and females. The mortality rates are age-adjusted to the 2000 U.S. standard population using 5-year age groups and are per 100,000 population. Age-adjustment allows rates to be compared over different time frames and allows rates from one geographic area to be compared with rates from another geographic area that may have differences in age distributions. Any observed differences in age-adjusted incidence rates are not due to differing age structures.

Age-Specific Incidence Rates

An age-specific rate is the rate of cancer found within a certain age group. Age-specific incidence rates were calculated using 5-year age groups and total population (both genders combined). They are reported per 100,000 population.

Statistical Significance

Z-Statistic

A Z-statistic is used to compare two different rates. This is defined as "the difference between two population proportions." Statistical significance was found if the calculated Z-statistic was found to be greater than 1.65. This provides the equivalence of a 95% confidence interval (see below) and is indicated in the report as "statistically significant" or "significant." The formula used can be found in most statistics books or by calling the WDH Chronic Disease Epidemiologist at (307) 777-8654.

Confidence Intervals

A confidence interval indicates the confidence level in the accuracy of a cancer rate. For example, if you calculate a cancer rate for a particular year as 130 cases per 100,000 people, with a confidence interval of 120 to 140 cases per 100,000, this means that you are 95% sure that the rate of cancer for that particular year lies somewhere between 120 to 140 cases per 100,000 people. The rate of 130 cases may in fact be correct, but you have more confidence that the "true" rate lies between 120 to 140 cases.

Confidence intervals are also used as a way to test statistical significance. If the confidence intervals of two different rates overlap one another, then there is no difference between the two rates. However, if the confidence intervals do not overlap one another, there is statistical significance. This is indicated in the report by the terms "statistically significant" or "significant."

Staging

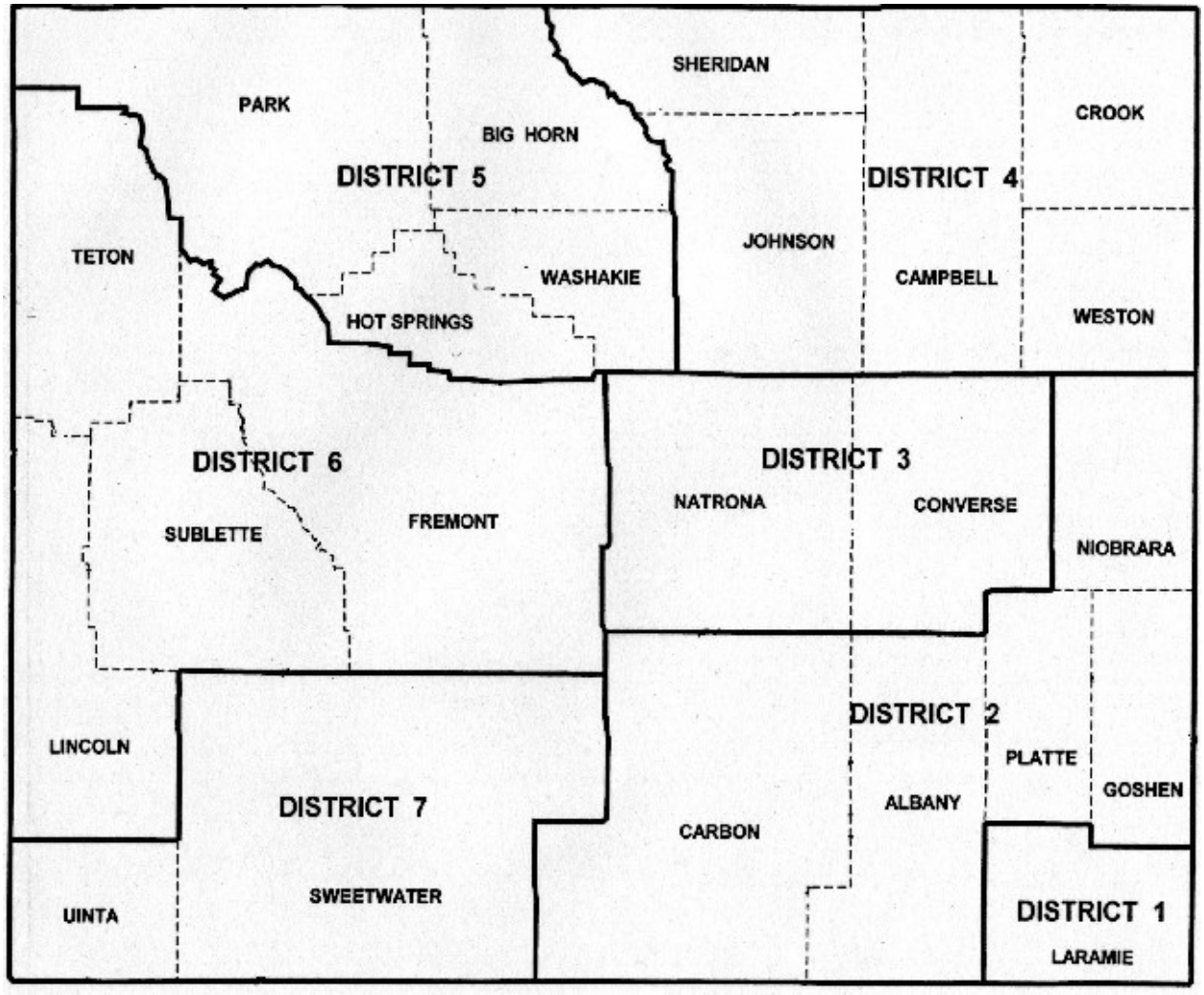
In Situ	cancer has not invaded the organ.
Local Stage	cancer has invaded the organ of origin.
Regional Stage	cancer has invaded beyond the organ of origin by direct extension to adjacent organs/tissues and/or regional lymph nodes.
Distant Stage	direct extension beyond adjacent organs or tissues or metastases to distant site(s) or distant lymph nodes.
Unstaged	extent of disease or primary site cannot be determined.

Note: Starting in 2004, the WCSP and other cancer registries belonging to the National Data Standard setters adopted and began using the Collaborative Staging Method for staging cancer cases. This method utilizes a new type of algorithm that provides more information concerning the size and extent of the cancer, as well as the number of nodes involved.

Cancer Health District

Cancer Health Districts (CHDs) were chosen based on geographic location, similarities in geography and by population size. Also taken into consideration were areas of the state that are routinely grouped for data requests and/or cancer cluster studies. This created seven CHDs that were similar in population size thereby eliminating some of the discrepancies in rate calculations that are caused from population size differences. CHDs are used when county data is too sparse to calculate accurate rates.

CHD 1 Laramie County
CHD 2 Albany County, Carbon County, Goshen County, Niobrara County, Platte County
CHD 3 Converse County, Natrona County
CHD 4 Campbell County, Crook County, Johnson County, Sheridan County, Weston County
CHD 5 Big Horn County, Hot Springs County, Park County, Washakie County
CHD 6 Fremont County, Lincoln County, Sublette County, Teton County
CHD 7 Sweetwater County, Uinta County



State of Wyoming - 2017

Cancer Incidence and Mortality by Gender and Age (All Sites)
Cancer Incidence and Mortality by Race and Ethnicity (Top 15 Sites)

Wyoming Cancer Incidence[1] for 2017: Cases by Gender and Age (All Sites)

	Male	Female	Total	00-04	05-09	10-14	15-19	20-24	25-29	30-34
Anus	6	12	18	0	0	0	0	0	0	0
Bladder w/ in situ	116	35	151	0	0	0	0	0	1	0
Bones and Joints	5	0	5	0	0	0	1	1	0	1
Brain	22	17	39	0	1	0	0	0	0	2
Breast	4	358	362	0	0	0	0	1	2	9
Cervix	0	26	26	0	0	0	0	0	1	1
Colorectal	131	99	230	0	0	2	2	2	2	1
Esophagus	14	5	19	0	0	0	0	0	0	0
Eye	0	0	0	0	0	0	0	0	0	0
Gallbladder	3	6	9	0	0	0	0	0	0	0
Hodgkin	10	6	16	0	0	1	1	1	2	1
Ill-Defined	50	52	102	1	0	0	0	0	1	0
Kidney	58	39	97	1	0	0	0	0	1	2
Larynx	14	9	23	0	0	0	0	0	0	0
Leukemia	43	28	71	0	0	0	0	0	0	1
Liver	29	7	36	0	0	0	0	0	0	0
Lung	152	127	279	0	0	0	0	0	0	0
Melanoma	85	73	158	0	0	1	1	0	1	5
Myeloma	21	16	37	0	0	0	0	0	0	1
Nasal	0	0	0	0	0	0	0	0	0	0
Non-Hodgkin Lymphoma	58	40	98	1	0	0	0	1	0	0
Oral Cavity	58	23	81	0	0	0	0	0	0	2
Other Biliary	9	11	20	0	0	0	0	0	0	0
Other Digestive	1	4	5	0	0	0	0	0	0	0
Other Endocrine	2	1	3	0	1	0	0	0	1	0
Other Female	0	15	15	0	0	0	0	0	0	0
Other Male	2	0	2	0	0	0	0	0	0	0
Other Skin	12	7	19	0	0	0	0	0	0	0
Other Respiratory	2	0	2	0	0	0	0	0	0	0
Other Urinary	6	1	7	0	0	0	0	0	0	0
Ovary	0	36	36	0	0	0	0	0	1	0
Pancreas	55	27	82	0	0	0	1	0	0	0
Prostate	469	0	469	0	0	0	0	0	0	0
Small Intestine	10	6	16	0	0	0	0	0	0	0
Soft Tissue including Heart	10	15	25	1	0	0	0	3	0	1
Stomach	20	4	24	0	0	0	0	0	1	0
Testis	23	0	23	0	0	0	4	2	3	4
Thyroid	26	63	89	0	0	1	1	2	6	10
Uterine	0	84	84	0	0	0	0	0	0	1
Mesothelioma	5	4	9	0	0	0	0	0	0	0
All Sites	1,532	1,256	2,788	4	2	5	11	13	23	42

[1] See page 10 for a definition of incidence.

	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85+
Anus	1	0	1	3	4	6	1	1	1	0	0
Bladder w/ in situ	0	1	1	5	10	17	26	32	23	13	22
Bones and Joints	0	0	1	0	0	0	0	1	0	0	0
Brain	1	1	4	4	3	4	3	4	7	3	2
Breast	7	16	30	30	45	52	44	46	33	18	29
Cervix	5	2	5	1	2	1	4	1	1	2	0
Colorectal	2	5	9	15	25	26	38	28	33	22	18
Esophagus	0	1	0	1	0	4	5	3	3	1	1
Eye	0	0	0	0	0	0	0	0	0	0	0
Gallbladder	0	0	0	0	0	0	4	2	1	0	2
Hodgkin	1	1	1	0	1	1	2	0	1	2	0
Ill-Defined	1	2	5	1	9	12	13	17	20	13	7
Kidney	2	6	3	8	9	12	24	14	10	2	3
Larynx	0	0	1	1	9	2	2	5	1	1	1
Leukemia	0	3	6	3	8	12	10	11	5	6	6
Liver	0	0	0	2	3	8	11	5	2	4	1
Lung	1	0	3	11	21	36	53	49	57	34	14
Melanoma	6	5	8	11	9	24	29	27	11	12	8
Myeloma	0	0	0	2	2	5	7	11	7	1	1
Nasal	0	0	0	0	0	0	0	0	0	0	0
Non-Hodgkin Lymphoma	4	2	3	4	7	11	17	13	10	13	12
Oral Cavity	3	3	4	5	11	13	15	11	7	5	2
Other Biliary	0	2	0	0	1	1	4	6	3	2	1
Other Digestive	0	1	0	1	0	0	0	2	1	0	0
Other Endocrine	0	0	0	0	1	0	0	0	0	0	0
Other Female	0	0	0	0	2	1	3	1	4	1	3
Other Male	0	0	0	0	0	1	1	0	0	0	0
Other Skin	1	0	1	3	1	3	1	1	1	4	3
Other Respiratory	0	0	0	0	0	0	0	2	0	0	0
Other Urinary	0	0	0	0	0	0	1	2	2	2	0
Ovary	1	0	2	7	4	4	4	8	3	1	1
Pancreas	0	0	3	6	9	12	14	12	11	6	8
Prostate	0	0	4	23	59	90	109	114	44	18	8
Small Intestine	0	0	1	2	1	2	5	3	1	1	0
Soft Tissue including Heart	0	2	0	1	3	7	0	2	1	2	2
Stomach	0	1	2	2	1	2	3	6	1	2	3
Testis	5	1	0	1	1	1	0	0	0	1	0
Thyroid	3	14	5	8	4	10	7	11	3	4	0
Uterine	0	3	3	6	16	21	19	13	1	0	1
Mesothelioma	0	0	0	0	0	0	4	1	3	1	0
All Sites	44	72	106	167	281	401	483	465	312	198	159

Wyoming Cancer Mortality[1] for 2017: Deaths by Gender and Age (All Sites)

	Male	Female	Total	00-04	05-09	10-14	15-19	20-24	25-29	30-34
Anus	0	2	2	0	0	0	0	0	0	0
Bladder w/ in situ	16	2	18	0	0	0	0	0	0	0
Bones and Joints	4	0	4	0	0	0	1	0	0	1
Brain	26	20	46	1	0	0	0	0	0	1
Breast	1	58	59	0	0	0	0	0	0	0
Cervix	0	3	3	0	0	0	0	0	0	0
Colorectal	39	32	71	0	0	0	0	0	0	0
Esophagus	19	3	22	0	0	0	0	0	0	0
Eye	0	0	0	0	0	0	0	0	0	0
Gallbladder	0	6	6	0	0	0	0	0	0	0
Hodgkin	1	1	2	0	0	0	0	0	0	0
Ill-Defined	48	37	85	0	0	0	0	0	0	0
Kidney	29	8	37	0	0	0	0	0	0	0
Larynx	6	0	6	0	0	0	0	0	0	0
Leukemia	23	13	36	0	0	0	0	0	0	0
Liver	29	4	33	0	0	0	0	0	0	1
Lung	115	99	214	0	0	0	0	0	0	0
Melanoma	14	10	24	0	0	0	0	0	0	0
Myeloma	8	8	16	0	0	0	0	0	0	0
Nasal	0	0	0	0	0	0	0	0	0	0
Non-Hodgkin Lymphoma	14	12	26	0	0	0	0	0	0	0
Oral Cavity	12	7	19	0	0	0	0	0	0	0
Other Biliary	6	4	10	0	0	0	0	0	0	1
Other Digestive	1	4	5	0	0	0	0	0	0	0
Other Endocrine	2	0	2	0	0	0	0	0	0	0
Other Female	0	5	5	0	0	0	0	0	0	0
Other Male	1	0	1	0	0	0	0	0	0	0
Other Skin	6	1	7	0	0	0	0	0	0	0
Other Respiratory	0	0	0	0	0	0	0	0	0	0
Other Urinary	0	1	1	0	0	0	0	0	0	0
Ovary	0	31	31	0	0	0	0	0	0	0
Pancreas	46	27	73	0	0	0	0	0	0	0
Prostate	40	0	40	0	0	0	0	0	0	0
Small Intestine	1	0	1	0	0	0	0	0	0	0
Soft Tissue including Heart	3	4	7	0	0	0	0	0	0	0
Stomach	4	6	10	0	0	0	0	0	0	0
Testis	2	0	2	0	0	0	0	0	1	0
Thyroid	1	0	1	0	0	0	0	0	0	0
Uterine	0	14	14	0	0	0	0	0	0	0
Mesothelioma	2	0	2	0	0	0	0	0	0	0
All Sites	519	422	941	1	0	0	1	0	1	4

[1]See page 10 for definition of mortality.

	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85+
Anus	0	0	0	0	0	0	0	0	0	0	2
Bladder w/ in situ	0	0	0	1	2	0	1	4	3	0	7
Bones and Joints	0	0	0	0	0	0	2	0	0	0	0
Brain	0	2	2	4	1	8	4	6	10	5	2
Breast	1	1	3	2	5	7	5	9	9	8	9
Cervix	1	0	0	0	0	0	0	1	1	0	0
Colorectal	3	0	1	2	5	6	10	11	6	11	16
Esophagus	0	0	1	0	2	8	2	1	4	2	2
Eye	0	0	0	0	0	0	0	0	0	0	0
Gallbladder	0	0	0	0	1	1	1	2	1	0	0
Hodgkin	0	0	0	0	0	0	0	1	0	0	1
Ill-Defined	0	0	3	0	7	9	13	8	15	14	16
Kidney	0	0	1	4	4	4	7	4	6	2	5
Larynx	0	0	0	0	0	2	1	2	1	0	0
Leukemia	0	0	0	2	4	7	5	6	5	4	3
Liver	0	0	0	1	2	9	7	6	2	3	2
Lung	3	1	2	4	18	27	29	43	34	24	29
Melanoma	1	0	3	3	2	0	4	4	2	2	3
Myeloma	0	0	0	0	0	0	3	3	4	2	4
Nasal	0	0	0	0	0	0	0	0	0	0	0
Non-Hodgkin Lymphoma	0	0	1	1	1	1	2	2	5	7	6
Oral Cavity	0	0	0	0	0	4	3	3	3	4	2
Other Biliary	0	2	0	1	1	0	2	0	1	0	2
Other Digestive	0	0	0	1	1	0	1	1	0	1	0
Other Endocrine	0	0	0	0	0	0	0	1	0	0	1
Other Female	0	0	0	0	0	0	1	1	0	1	2
Other Male	0	0	0	0	0	0	1	0	0	0	0
Other Skin	0	0	0	0	0	2	1	0	1	0	3
Other Respiratory	0	0	0	0	0	0	0	0	0	0	0
Other Urinary	0	0	0	0	0	0	0	0	0	0	1
Ovary	0	0	2	0	2	5	7	3	6	2	4
Pancreas	0	0	3	4	7	11	12	10	8	8	10
Prostate	0	0	0	0	1	2	7	5	8	4	13
Small Intestine	0	0	0	0	0	1	0	0	0	0	0
Soft Tissue including Heart	0	0	0	0	1	2	1	0	2	1	0
Stomach	0	0	0	0	2	1	2	0	0	3	2
Testis	1	0	0	0	0	0	0	0	0	0	0
Thyroid	0	0	0	0	1	0	0	0	0	0	0
Uterine	0	0	0	0	0	1	0	5	4	2	2
Mesothelioma	0	0	0	0	0	0	1	1	0	0	0
All Sites	10	6	22	30	70	118	135	143	141	110	149

Wyoming Cancer Incidence for 2017: Cases by Race and Ethnicity
(Top 15 Sites Only)

	Total	White	African American	Native American	Asian	Other	Ethnicity: Hispanic/Latino
All Sites	2,724	2,669	12	23	16	4	86
Bladder	151	148	0	2	0	1	1
Brain	39	38	0	1	0	0	0
Breast (Female)	362	359	1	0	1	1	11
Colorectal	230	219	4	4	3	0	16
Kidney	97	94	0	3	0	0	2
Leukemia	71	69	1	1	0	0	1
Lung	279	272	0	2	5	0	9
Melanoma	158	155	0	2	0	1	2
Non-Hodgkin Lymphoma	98	97	0	0	1	0	4
Oral Cavity	81	80	0	0	1	0	2
Ovary	36	34	0	2	0	0	4
Pancreas	82	81	0	1	0	0	1
Prostate	469	465	3	0	0	1	6
Thyroid	89	86	0	1	2	0	4
Uterine	84	83	0	1	0	0	3

Wyoming Cancer Mortality for 2017: Cases by Race and Ethnicity
(Top 15 Sites Only)

	Total	White	African American	Native American	Asian	Other	Ethnicity: Hispanic/Latino
All Sites	939	919	5	12	1	2	35
Bladder	18	18	0	0	0	0	0
Brain/CNS	46	45	0	1	0	0	2
Breast (Female)	59	57	1	1	0	0	3
Colorectal	71	71	0	0	0	0	3
Kidney	37	35	1	1	0	0	3
Leukemia	36	36	0	0	0	0	0
Lung	214	209	1	3	0	1	3
Melanoma	24	24	0	0	0	0	0
Non-Hodgkin Lymphoma	26	26	0	0	0	0	2
Oral Cavity	19	19	0	0	0	0	1
Ovary	31	30	0	1	0	0	2
Pancreas	73	72	0	0	0	1	3
Prostate	40	40	0	0	0	0	2
Thyroid	1	1	0	0	0	0	0
Uterine	14	14	0	0	0	0	0

State of Wyoming - 2017

Top Cancer Sites by Gender and Age - Incidence and Mortality

Top Cancer Incidence - Site by Gender - 2017

Total		Male		Female	
Prostate	469	Prostate	469	Breast	358
Breast	362	Lung	152	Lung	127
Lung	279	Colorectal	131	Colorectal	99
Colorectal	230	Bladder/w in situ	116	Uterine	84
Melanoma	158	Melanoma	85	Melanoma	73

Top Incidence Sites by Age (Case count included only if more than 3 cases per cancer)

		0-4		5-9		10-14		15-19	
		Each site has less than 3 cases		Each site has less than 3 cases		Each site has less than 3 cases		Testis	4
20-24		25-29		30-34		35-39		40-44	
Soft Tissue/ W Heart	3	Thyroid	6	Thyroid	10	Breast	7	Breast	16
		Testis	3	Breast	9	Melanoma	6	Thyroid	14
				Melanoma	5	Cervix	5	Kidney	6
						Testis	5		
45-49		50-54		55-59		60-64		65-69	
Breast	30	Breast	30	Prostate	59	Prostate	90	Prostate	109
Colorectal	6	Prostate	23	Breast	45	Breast	52	Lung	53
Melanoma	8	Colorectal	15	Colorectal	25	Lung	36	Breast	44
Leukemia	6	Lung	11	Lung	21	Colorectal	26	Colorectal	38
		Melanoma	11	Uterine	16	Melanoma	24	Melanoma	29
70-74		75-79		80-84		85+			
Prostate	114	Lung	57	Lung	34	Breast	29		
Lung	49	Prostate	44	Colorectal	22	Non-Hodgkin	29		
Breast	46	Breast	33	Breast	18	Bladder	22		
Bladder	32	Colorectal	33	Prostate	18	Colorectal	18		
Colorectal	28	Bladder	23			Lung	14		

Top Cancer Mortality - Site by Gender - 2017

Total		Male		Female	
Lung	214	Lung	115	Lung	99
Ill-Defined	85	Ill-Defined	48	Breast	58
Pancreas	73	Pancreas	46	Ill-Defined	37
Colorectal	71	Prostate	40	Colorectal	32
Breast	59	Colorectal	39	Ovary	31

Top Mortality Sites by Age (Mortality count included only if 2 or more cases per cancer)

		0-4		5-9		10-14		15-19	
		Each site has less than 2 deaths		Each site has less than 2 deaths		Each site has less than 2 deaths		Each site has less than 2 deaths	
20-24		25-29		30-34		35-39		40-44	
Each site has less than 2 deaths		Each site has less than 2 deaths		Each site has less than 2 deaths		Colorectal	3	Brain/CNS	2
						Lung	3	Other Biliary	2
45-49		50-54		55-59		60-64		65-69	
Breast	3	Brain/CNS	4	Lung	18	Lung	27	Lung	29
Ill-Defined	3	Kidney	4	Ill-Defined	7	Pancreas	11	Ill-Defined	13
Melanoma	3	Lung	4	Pancreas	7	Ill-Defined	9	Pancreas	12
Pancreas	3	Pancreas	4	Breast	5	Liver	9	Colorectal	10
				Colorectal	5	Brain & Esophagus	8		
70-74		75-79		80-84		85+			
Lung	43	Lung	34	Lung	24	Lung	29		
Colorectal	11	Ill-Defined	15	Ill-Defined	14	Colorectal	16		
Pancreas	10	Brain/CNS	10	Colorectal	11	Ill-Defined	16		
Breast	9	Breast	9	Breast	8	Prostate	13		
Ill-Defined	8	Pancreas & Prostate	8	Pancreas	8	Pancreas	10		

Relative Survival Rates State of Wyoming
2010-2017
All Sites and Top 15 Cancers

Relative Survival by Cancer Type: 2010-2017 (All Ages and Stages Combined)

Cancer Site	12 Months	24 Months	36 Months	48 Months	**60 Months**
All Sites	81.90%	75.20%	71.40%	67.70%	**64.90%**
Bladder w/in situ	94.70%	90.30%	88.90%	87.50%	**86.40%**
Brain/CNS	57.10%	40.40%	35.20%	28.10%	**25.10%**
Breast (Female)	97.50%	96.00%	93.30%	91.20%	**88.50%**
Colorectal	83.00%	74.40%	69.20%	63.00%	**57.10%**
Kidney	88.10%	82.70%	80.30%	74.30%	**71.20%**
Leukemia	79.70%	71.60%	67.10%	61.50%	**58.40%**
Lung	45.90%	30.10%	23.90%	18.70%	**15.80%**
Melanoma	97.10%	93.10%	90.20%	87.90%	**81.80%**
Non-Hodgkin	83.40%	78.70%	76.20%	70.80%	**68.80%**
Oral Cavity	89.70%	80.60%	73.10%	67.70%	**63.60%**
Ovary	82.50%	68.50%	60.30%	51.20%	**40.10%**
Pancreas	29.60%	15.20%	12.10%	9.30%	**9.30%**
Prostate	99.40%	98.80%	97.30%	95.80%	**94.70%**
Thyroid	98.00%	97.60%	96.80%	96.80%	**95.50%**
Uterine	95.40%	90.70%	86.70%	83.80%	**81.60%**

Relative Survival by Cancer Type: 2010-2017 all stages (Ages 0-19 years old)

Cancer Site	12 Months	24 Months	36 Months	48 Months	**60 Months**
All Sites	96.10%	91.80%	90.80%	85.50%	**82.30%**
Brain	85.80%	77.20%	77.20%	59.60%	**59.60%**
Hodgkin Lymphoma	91.70%	91.70%	91.70%	91.70%	**91.70%**
Leukemia	100.0%	88.90%	72.80%	72.80%	**NC**
Soft Tissue, including Heart	100.0%	100.00%	100.00%	100.00%	**100.00%**
Testis	100.00%	100.00%	100.00%	100.00%	**NC**
Thyroid	100.00%	100.00%	100.00%	100.00%	**NC**

Note: Recurrent percentages across months are partly due to low numbers of cases in this age-group
NC—Not Calculated -

Relative Survival: is a net survival measure representing cancer survival in the absence of other causes of death. It is defined as the ratio of the proportion of observed survivors in a cohort of cancer patients to the proportion of expected survivors in a comparable set of cancer-free individuals for a specific time period.

5-Year Survival: A 5-year (60 months) survival rate is important when discussing cancer because a person who is diagnosed with cancer (e.g., breast cancer) is considered "cured" if they can survive five years after treatment and they are found to have no other cancer. This does not mean that they may not develop another cancer after five years or even have a reoccurrence, but for the initial diagnosis they are considered "cured."

Stage: Many factors play a part in the survival of a cancer patient including the stage at which the cancer is detected. Having a cancer diagnoses at an early stage (e.g., local or Stage I) generally results in a better survival prognosis that a cancer detected in its later stages (e.g., distant or Stage IV).

Summary of
All Cancer Sites Combined
and
Top 15 Sites

2017 Wyoming Incidence and Mortality Rates

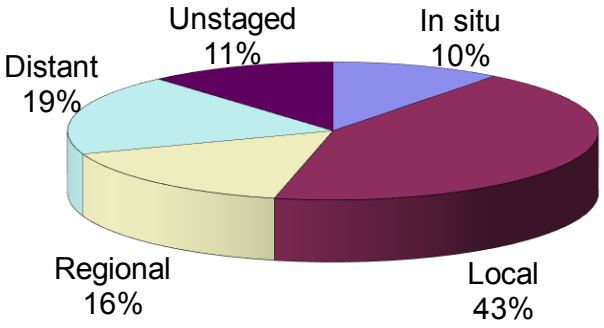
All Cancer Sites

Incidence and Mortality Summary

	Male	Female	Total
Invasive Cases	1,532	1,256	2,788
In situ Cases	171	155	326
WY Incidence	438.3	366.7*	399.6
US Incidence	466.8	420.9	437.7
Cancer Deaths	517	422	939
WY Mortality	156.9	115.8	135.1
US Mortality	186.3	134.7	156.7

* indicates the state rate is significantly different than the national rate
NC = rate not calculated for under 5 cases/deaths

Stage at Diagnosis



The incidence and mortality rates for Wyoming were all lower than the United States rates for 2017, with only female incidence being statistically significant.

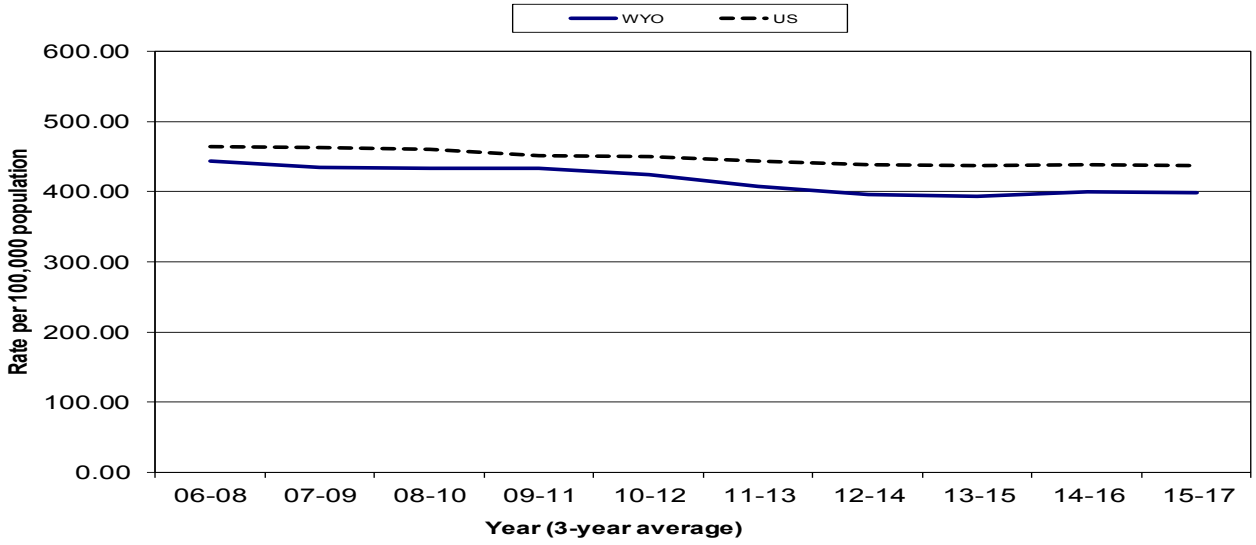
The 12-year incidence trend for Wyoming is level from 2011-2013 to 2015-2017. The national incidence trend remains steady.

The percent of cancers diagnosed at each stage in 2017 are nearly identical to the percentages in 2016, with only 55 more cases in 2017 than in 2016.

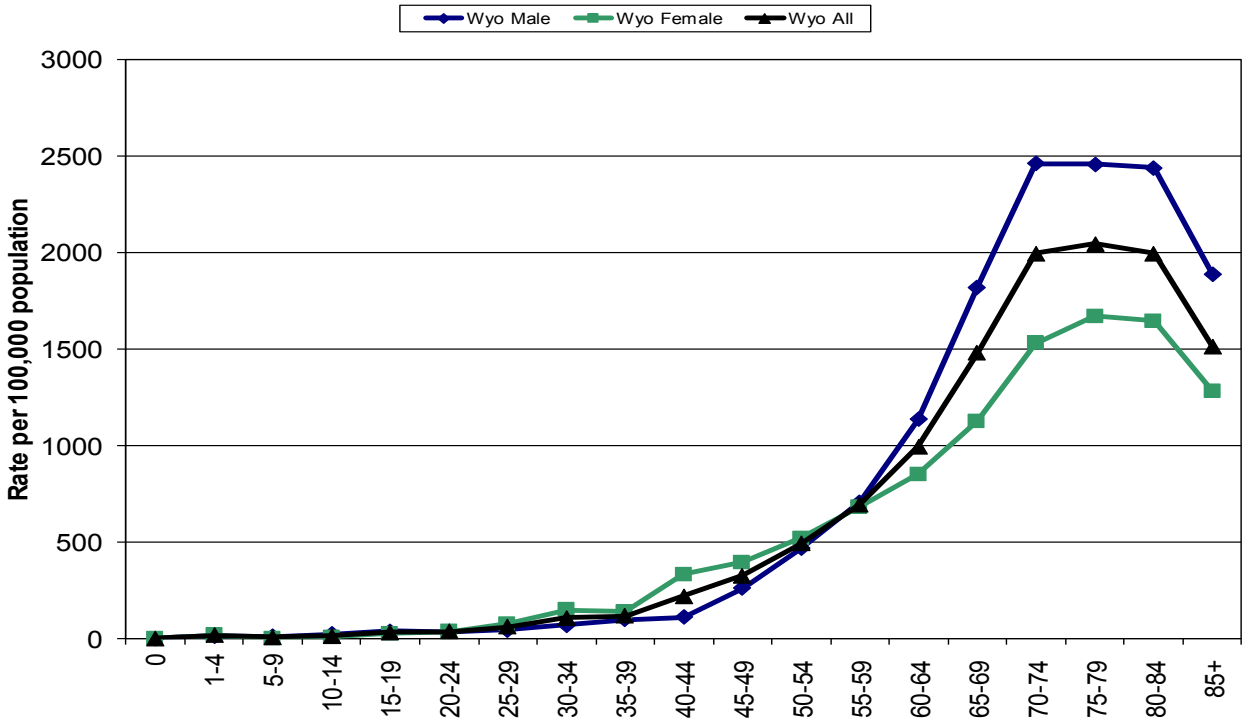
There were a total of eleven cancers diagnosed in children under the age of 15 in 2017.

There were no significant differences between CHD rates for incidence or mortality.

12-Year Incidence Trend

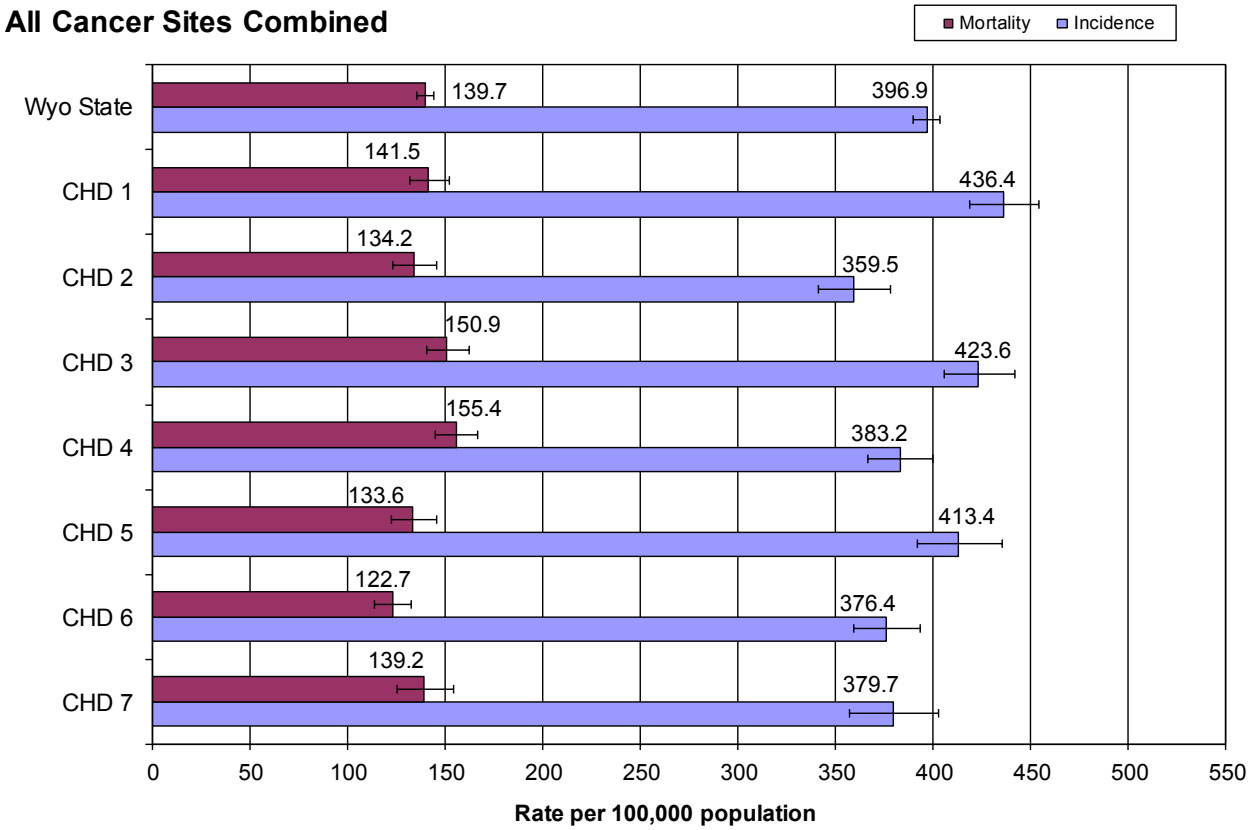


Age-Specific Incidence Rates - 2017



Cancer Health District Incidence and Mortality
5-Year Average, 2013-2017

All Cancer Sites Combined



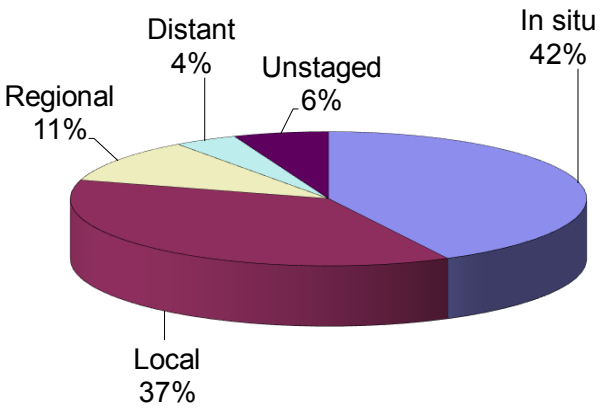
Bladder (Urinary)
includes In Situ Cases

Incidence and Mortality Summary

	Male	Female	Total
All Cases	116	35	151
In situ Cases	50	14	64
WY Incidence	35.0	9.6	21.1
US Incidence	35.9	9.0	20.8
Cancer Deaths	16	2	18
WY Mortality	5.51	0.5	2.6
US Mortality	8.00	2.2	4.6

* indicates the state rate is significantly different than the national rate
NC = rate not calculated for under 5 cases/deaths

Stage at Diagnosis



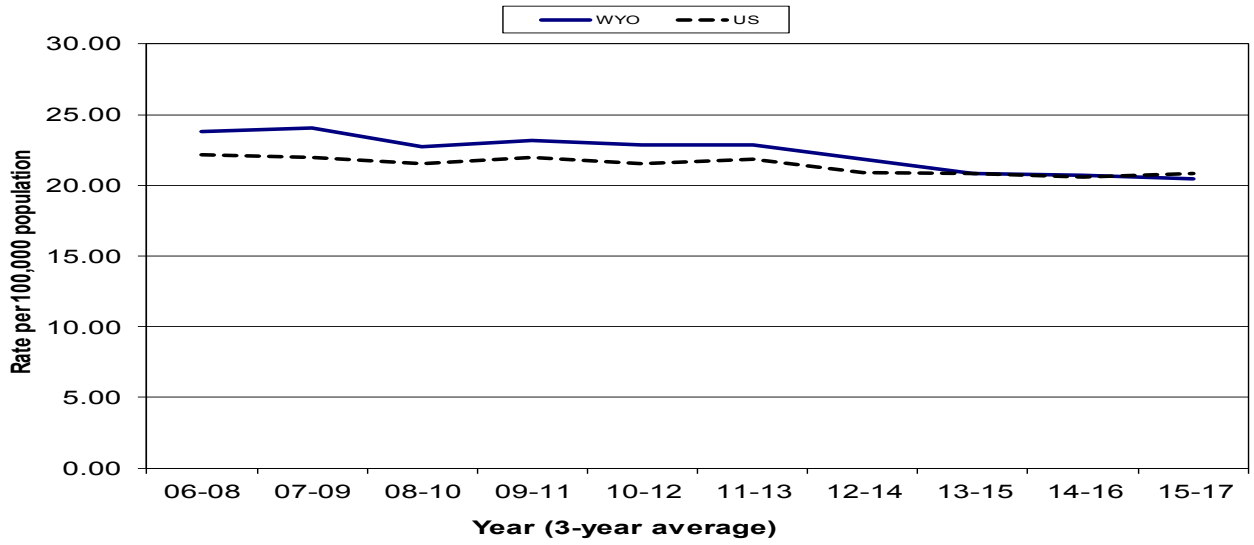
The incidence rate for males was lower, but the female and total incidence rate for Wyoming was slightly higher than the national rate. The mortality rates for all three were lower in Wyoming than the nation.

The incidence trend shows Wyoming and US having basically the same rates since 2013-2015.

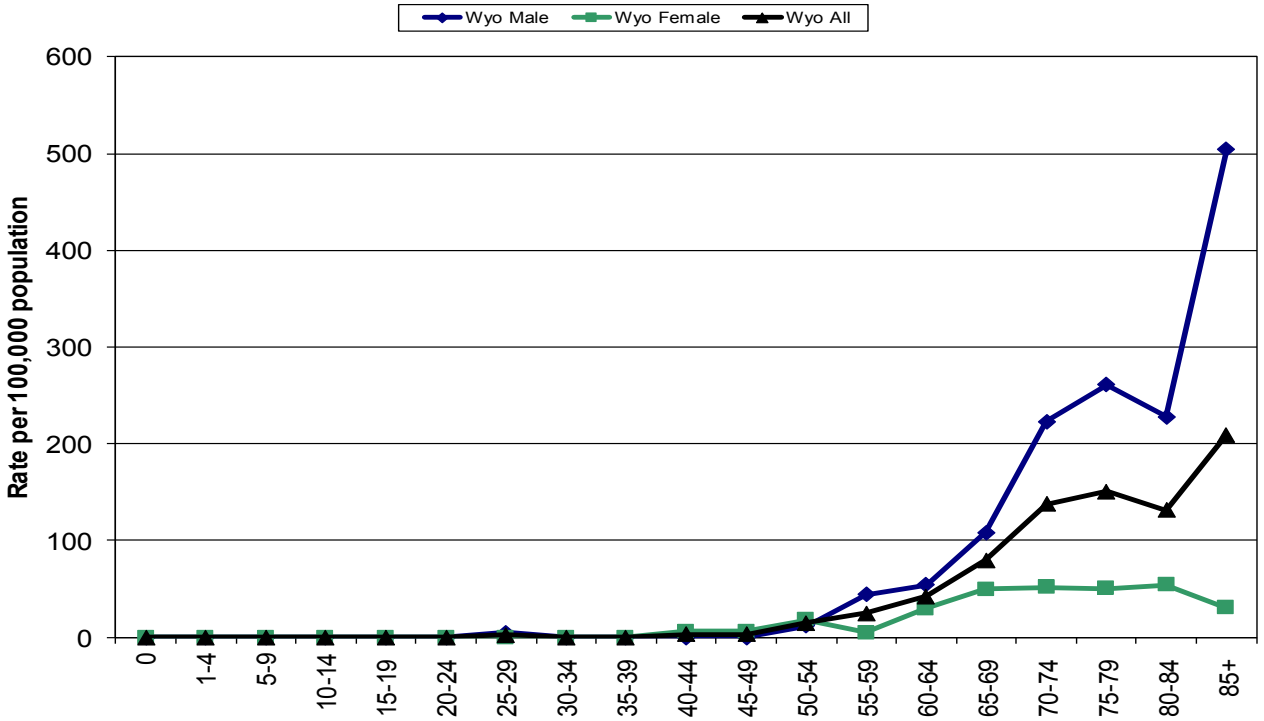
The percent of cancers diagnosed as In situ decreased from 2016 (55%) while the percent diagnosed at the local and regional stages increased from 2016 (31% and 6% respectively).

No statistically significant differences were found between the CHD rates and the state rate for incidence or mortality.

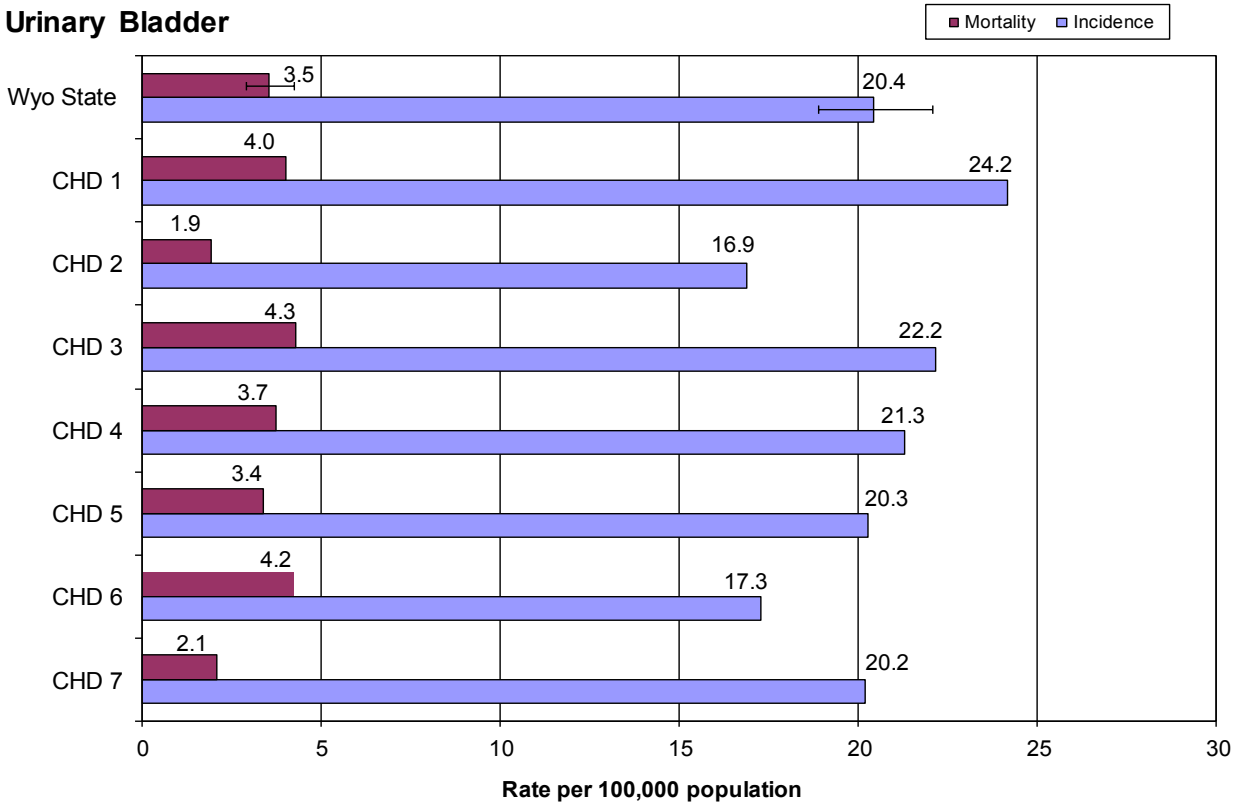
12-Year Incidence Trend



Age-Specific Incidence Rates - 2017



Cancer Health District Incidence and Mortality
5-Year Average, 2013-2017



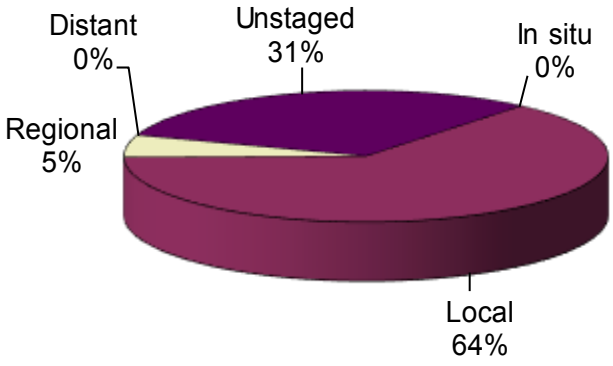
Brain/Central Nervous System (CNS)

Incidence and Mortality Summary

	Male	Female	Total
Invasive Cases	22	17	39
WY Incidence	7.5	5.1	6.3
US Incidence	7.8	5.5	6.6
Cancer Deaths	26	20	46
WY Mortality	8.5	5.8	7.1
US Mortality	6.0	4.0	4.9

* indicates the state rate is significantly different than the national rate
NC = rate not calculated for under 5 cases/deaths

Stage at Diagnosis



The incidence rates of Brain/CNS cancer in Wyoming were all lower than the national rate, the mortality rates in each Wyoming population was higher than that national rate.

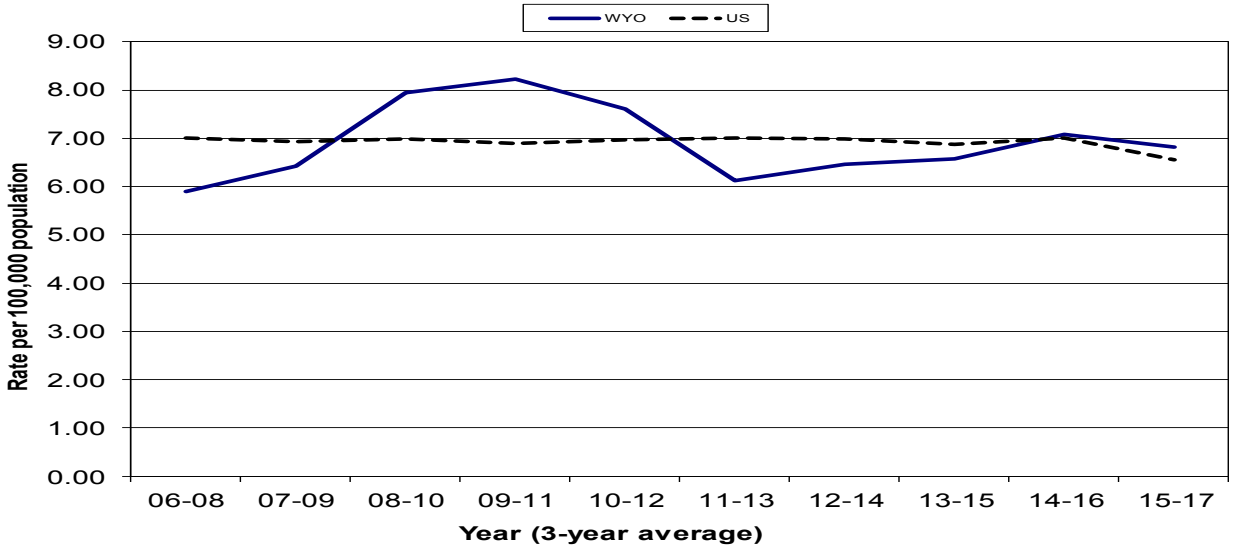
The 12-year trend shows a decrease from 2014-2016 to 2015-2017.

The percentage of cases diagnosed as Regional decreased by half from 2016 (10%), while the number of cases classified as Unstaged increased from 25% in 2016.

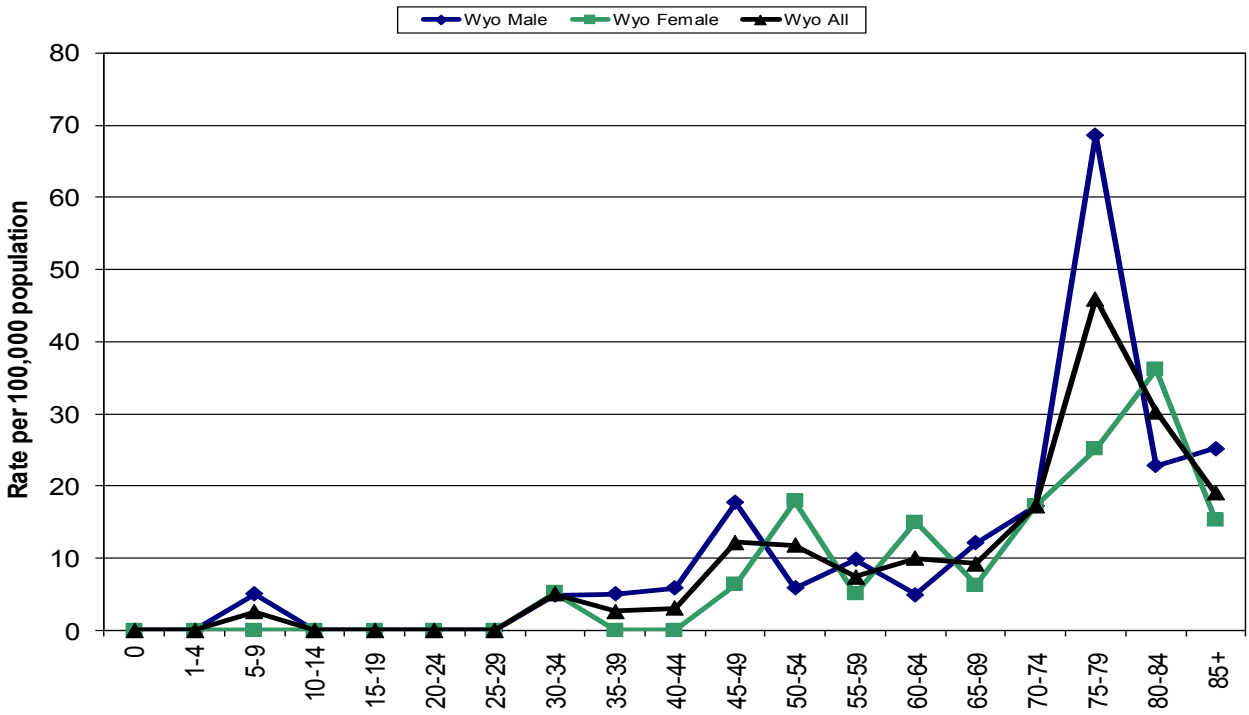
There were 55 cases of benign brain tumors diagnosed in Wyoming in 2017.

No statistically significant differences were found between the CHD rates and the state rates.

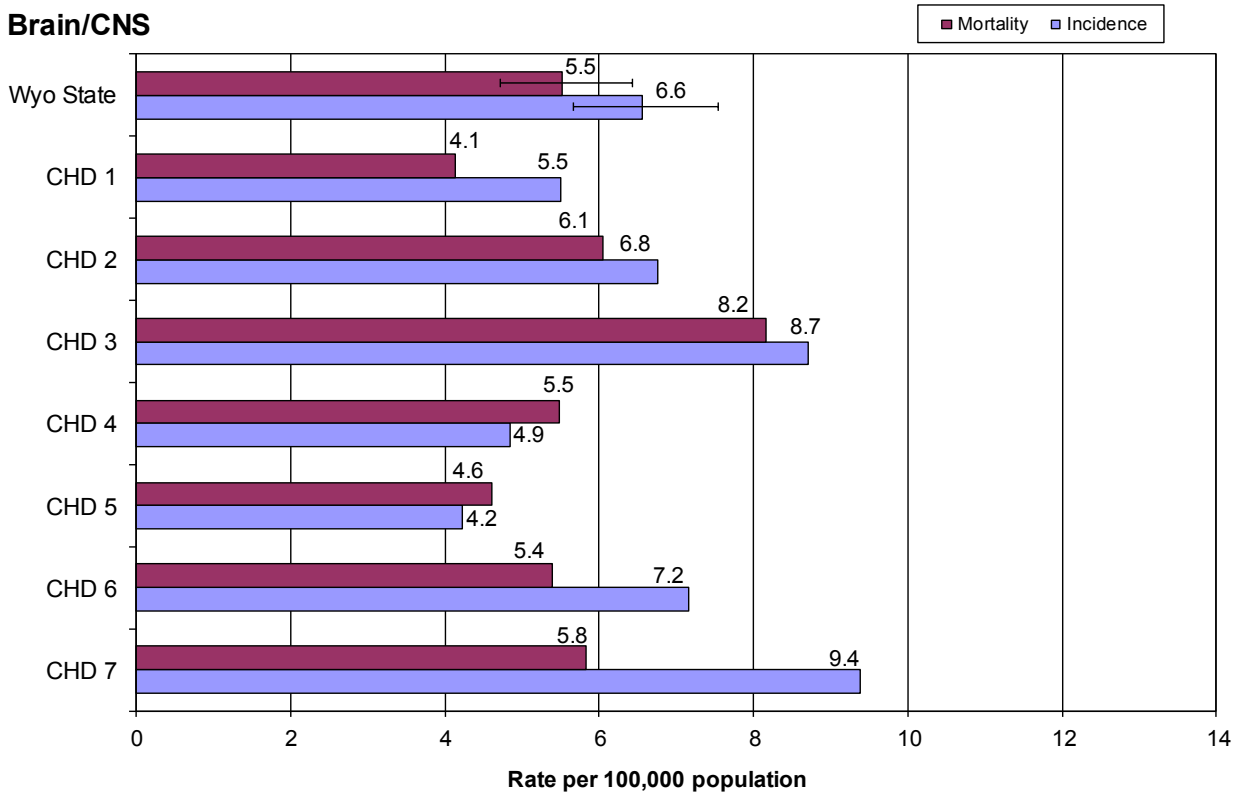
12-Year Incidence Trend



Age-Specific Incidence Rates - 2017



Cancer Health District Incidence and Mortality
5-Year Average, 2013-2017



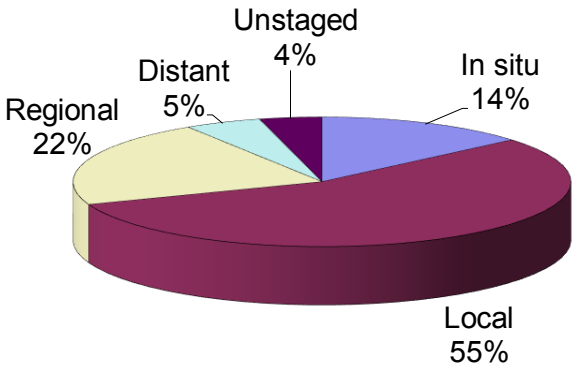
Breast (Female Only)

Incidence and Mortality Summary

	Female
Invasive Cases	358
In situ Cases	58
WY Incidence	106.2
US Incidence	128.9
Cancer Deaths	58
WY Mortality	16.7
US Mortality	19.6

* indicates the state rate is significantly different than the national rate
NC = rate not calculated for under 5 cases/deaths

Stage at Diagnosis



The incidence and mortality rates for Wyoming females were both lower than the national rates.

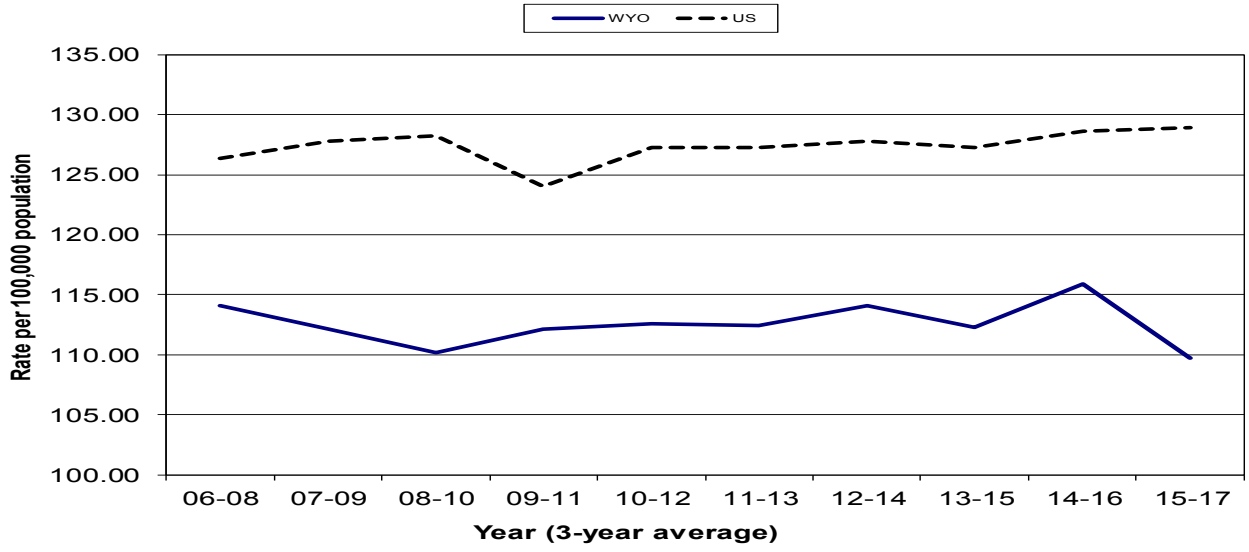
The 12-year incidence trend shows a sharp decline from 2014-2016 to 2015-2017, after a preceding increase from 2013-2015 to 2014-2016. The national rate is trending upwards since 2013-2015.

The percentage of cases diagnosed at each stage in 2017 were very similar to the percentages in 2016.

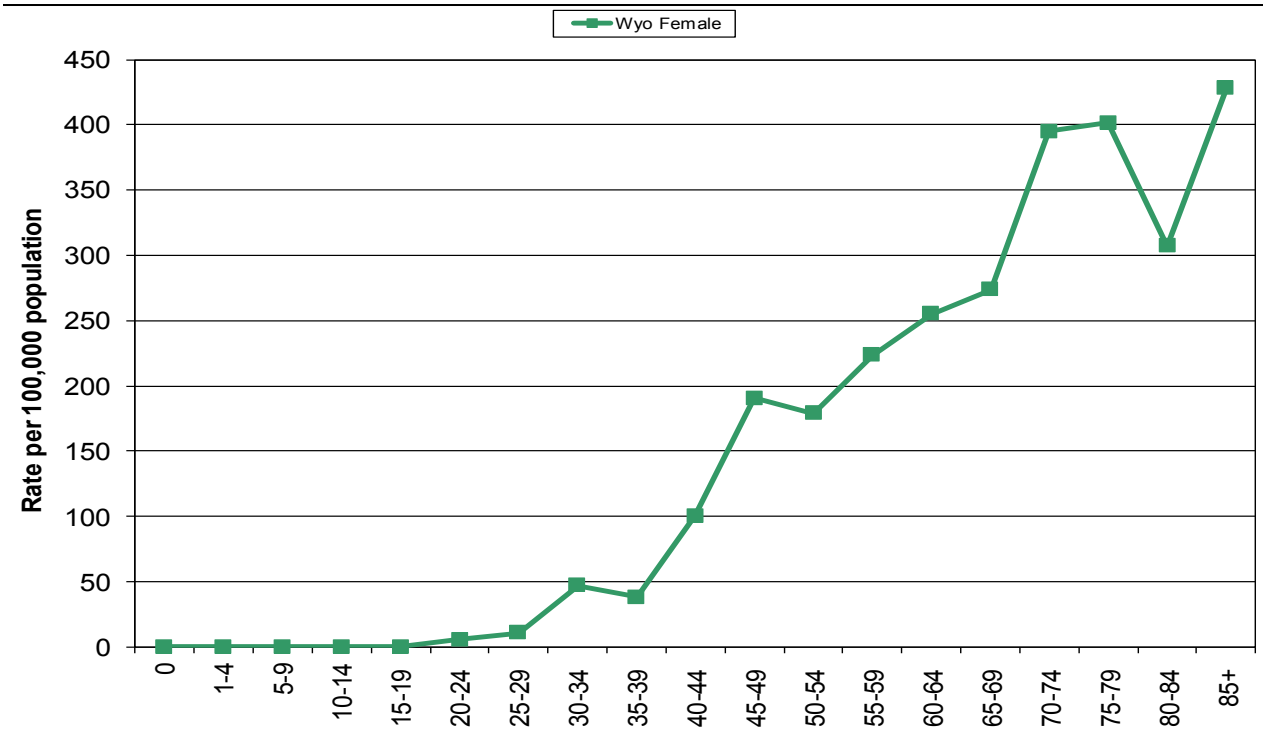
No statistically significant differences were found for incidence or mortality between CHDs.

There were four cases of invasive breast cancer and one death among Wyoming males in 2017.

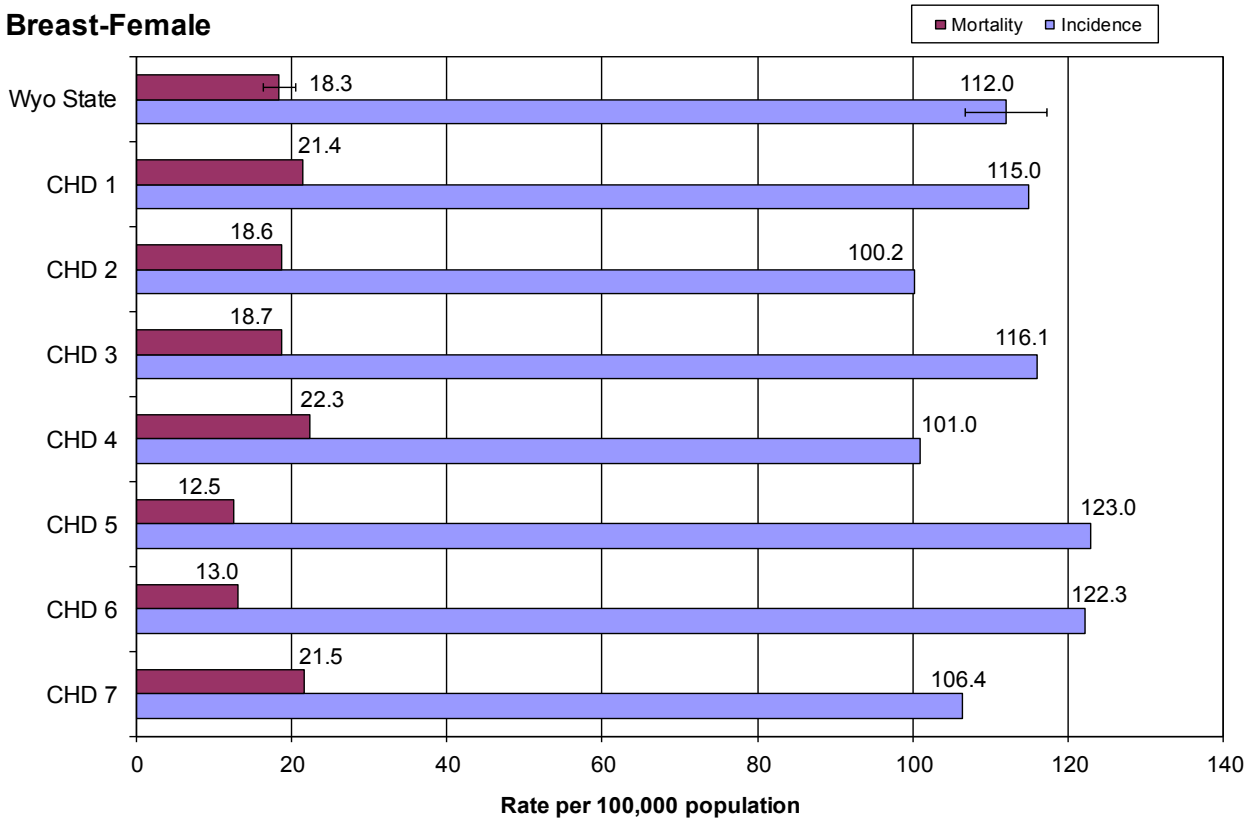
12-Year Incidence Trend



Age-Specific Incidence Rates - 2017



Cancer Health District Incidence and Mortality
5-Year Average, 2013-2017



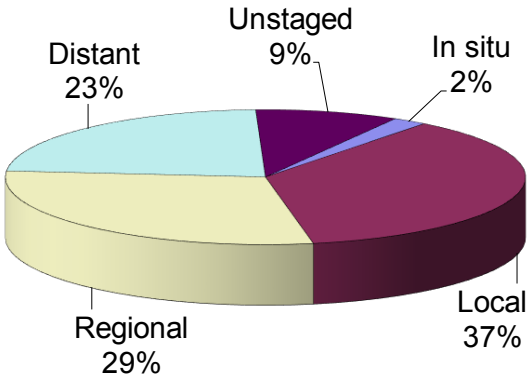
Colorectal

Incidence and Mortality Summary

	Male	Female	Total
Invasive Cases	131	99	230
WY Incidence	39.5	28.0	33.8
US Incidence	41.3	32.6	38.6
Cancer Deaths	39	32	71
WY Mortality	11.7	9.0	10.4
US Mortality	15.9	11.3	13.4

* indicates the state rate is significantly different than the national rate
NC = rate not calculated for under 5 cases/deaths

Stage at Diagnosis



The Wyoming incidence and mortality rates for Wyoming were all lower than the national rates in 2017, though none were statistically significant.

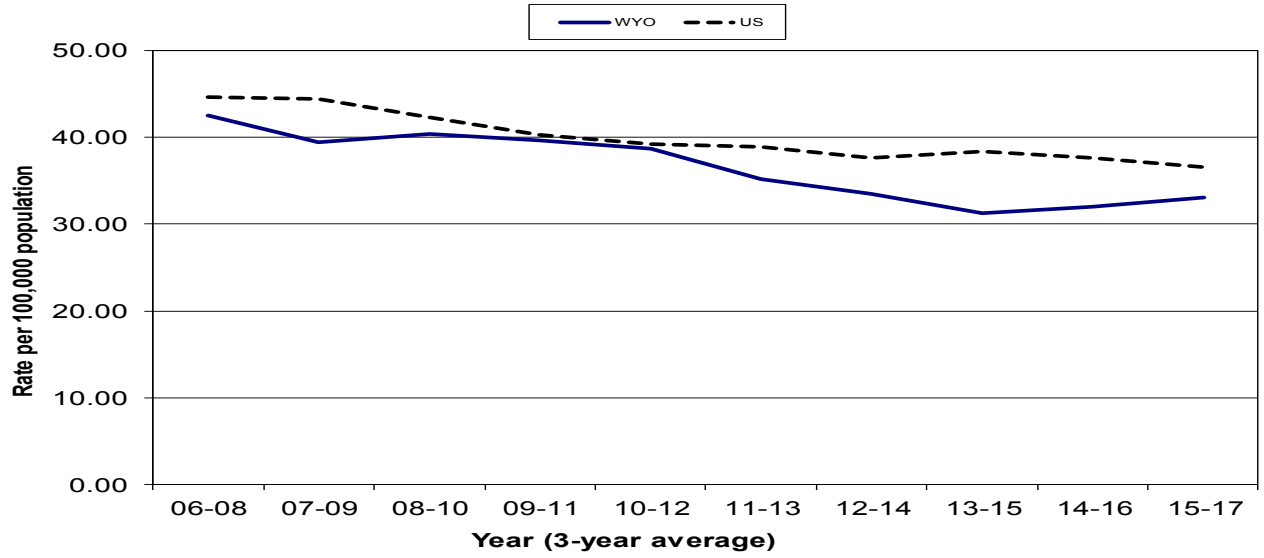
The 12-year incidence graph shows that the incidence rate has increased since 2013-2015, while the national rate has decreased slightly over the same time period.

The percentage of colorectal cancers diagnosed as Distant increased from 2016 (19%) , while the Unstaged category decreased from 2016 (12%). The other stages were similar to 2016.

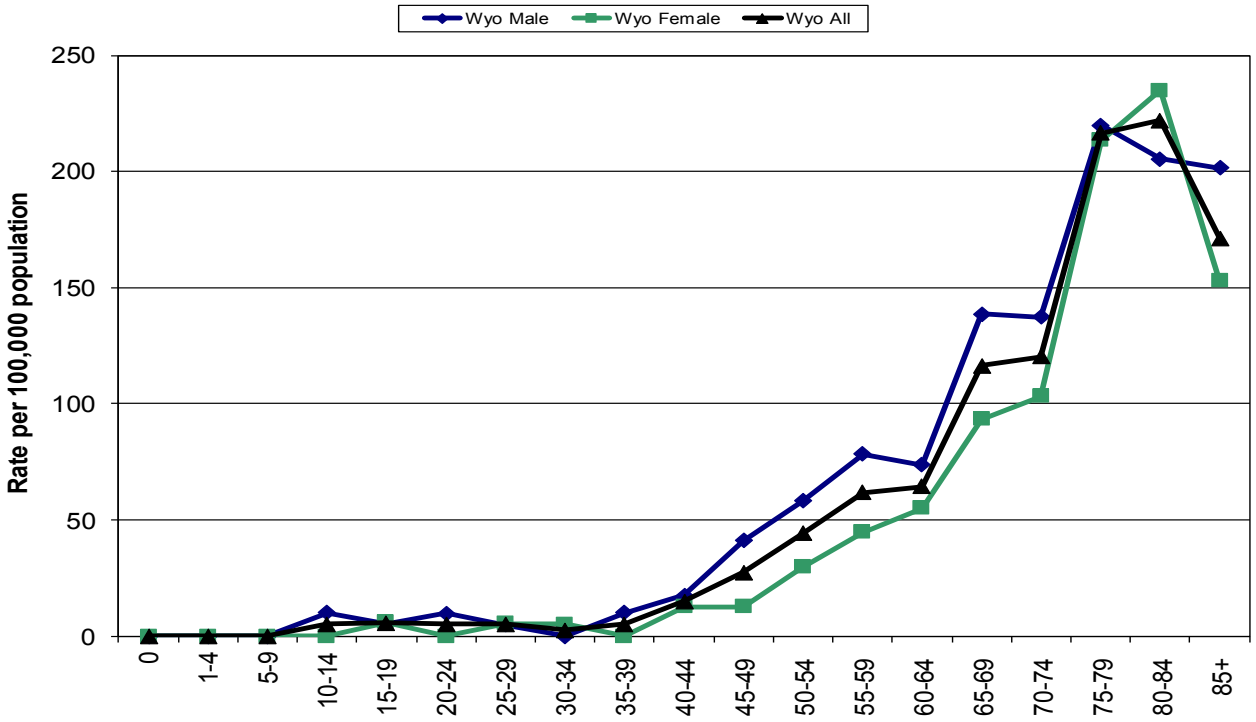
No statistically significant differences were found between the CHD rates and the state rate for incidence or mortality.

(Colorectal = Colon and rectum combined)

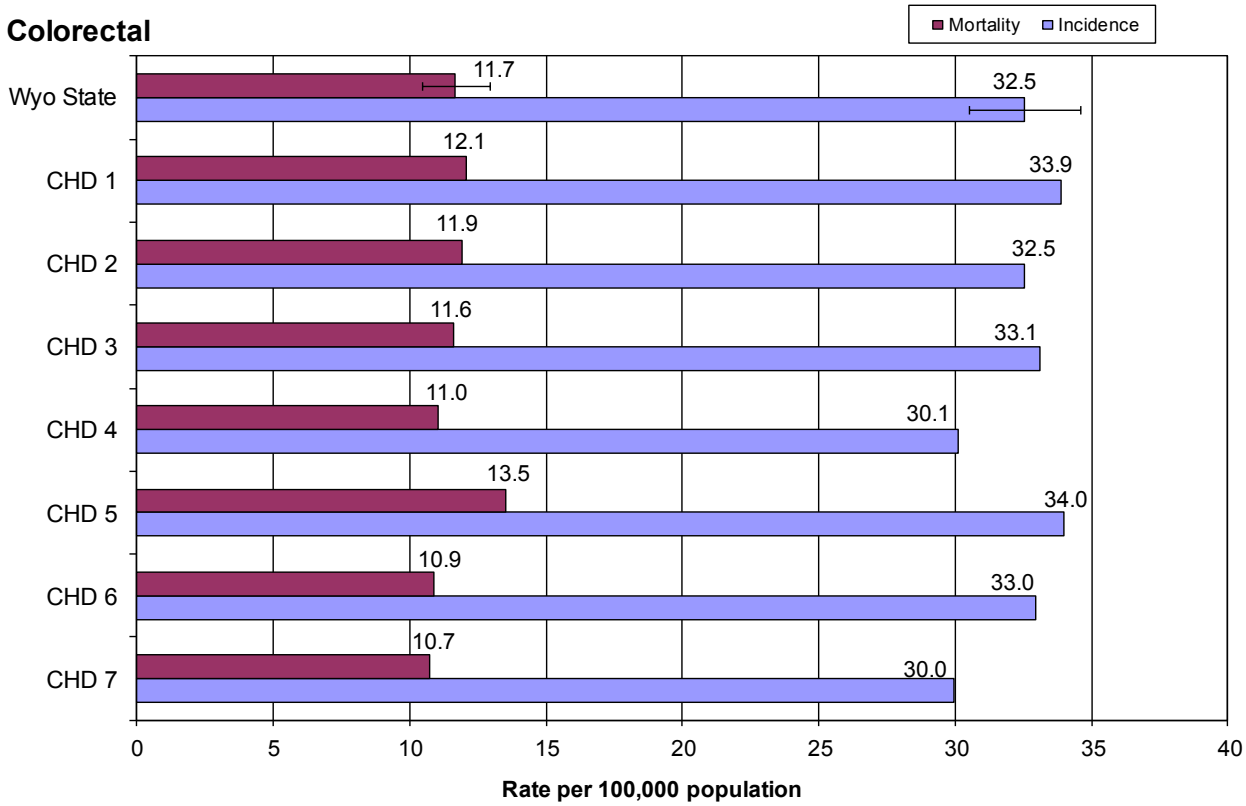
12-Year Incidence Trend



Age-Specific Incidence Rates - 2017



Cancer Health District Incidence and Mortality
5-Year Average, 2013-2017



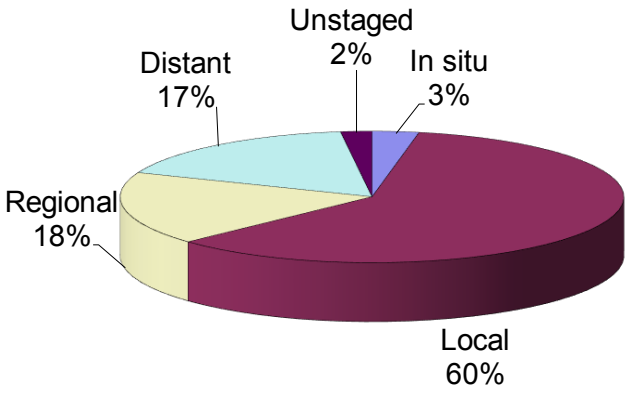
Kidney/Renal Pelvis

Incidence and Mortality Summary

	Male	Female	Total
Invasive Cases	58	39	97
WY Incidence	16.9	11.3	14.0
US Incidence	22.6	11.1	16.5
Cancer Deaths	29	8	37
WY Mortality	8.9	2.0	5.3
US Mortality	5.4	2.3	3.7

* indicates the state rate is significantly different than the national rate
NC = rate not calculated for under 5 cases/deaths

Stage at Diagnosis



The incidence rates for Wyoming males and total population were lower than the national rates , while the female rate is basically equal to the national rate. The mortality rates for males and total population were both higher than the national rate, with the female rate nearly equal to the national rate.

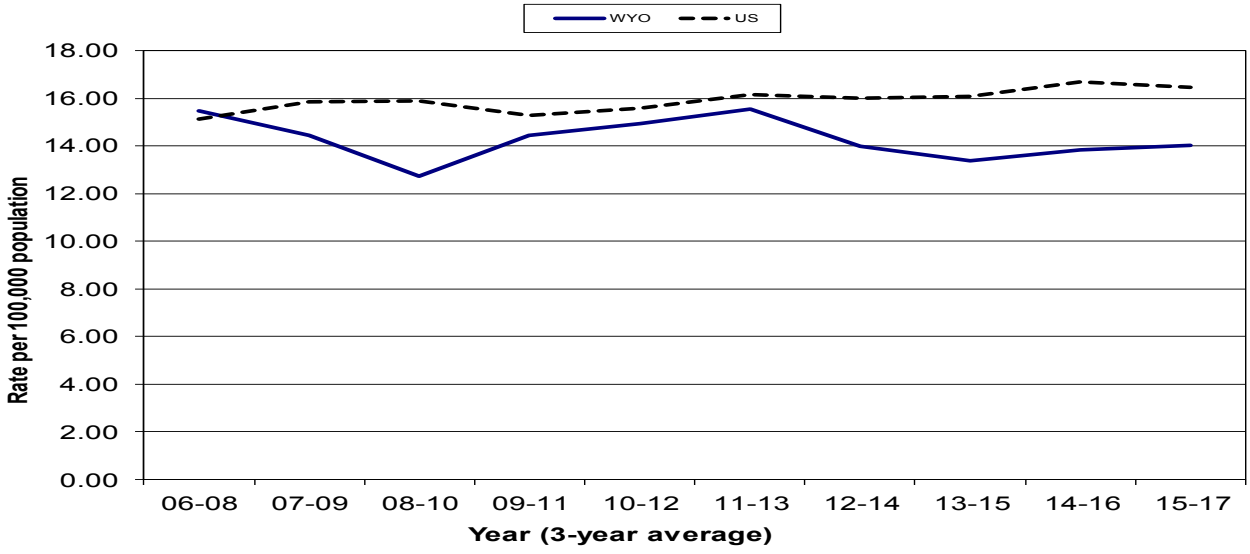
The 12-year trend shows a slight increase from 2013-2015 to 2015-2017. The national rate looks to decreased a little from 2014-2016-2015-2017.

The percent of cases diagnosed as Local is down from 2016 (69%), but both the Regional and Distant categories increased from 2016 (12% each).

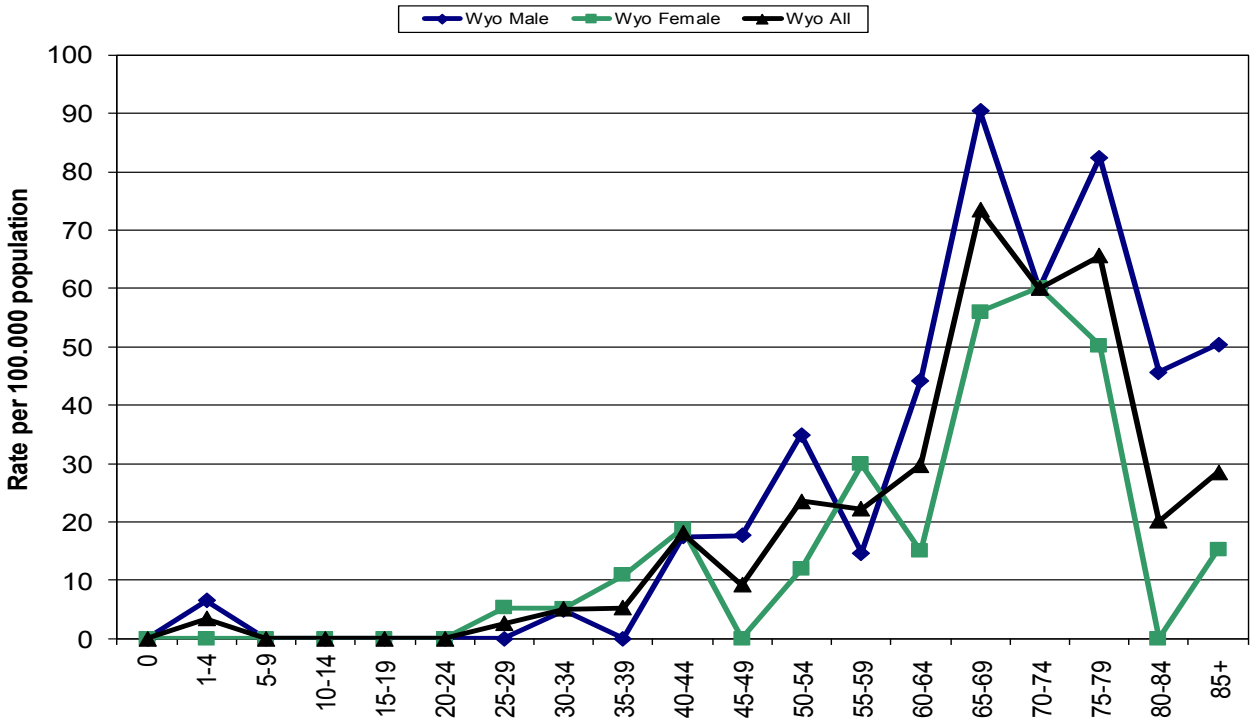
There was one case diagnosed in Wyomingites under 5 years of age in 2017.

No statistically significant differences were found between the CHD rates and the state rates.

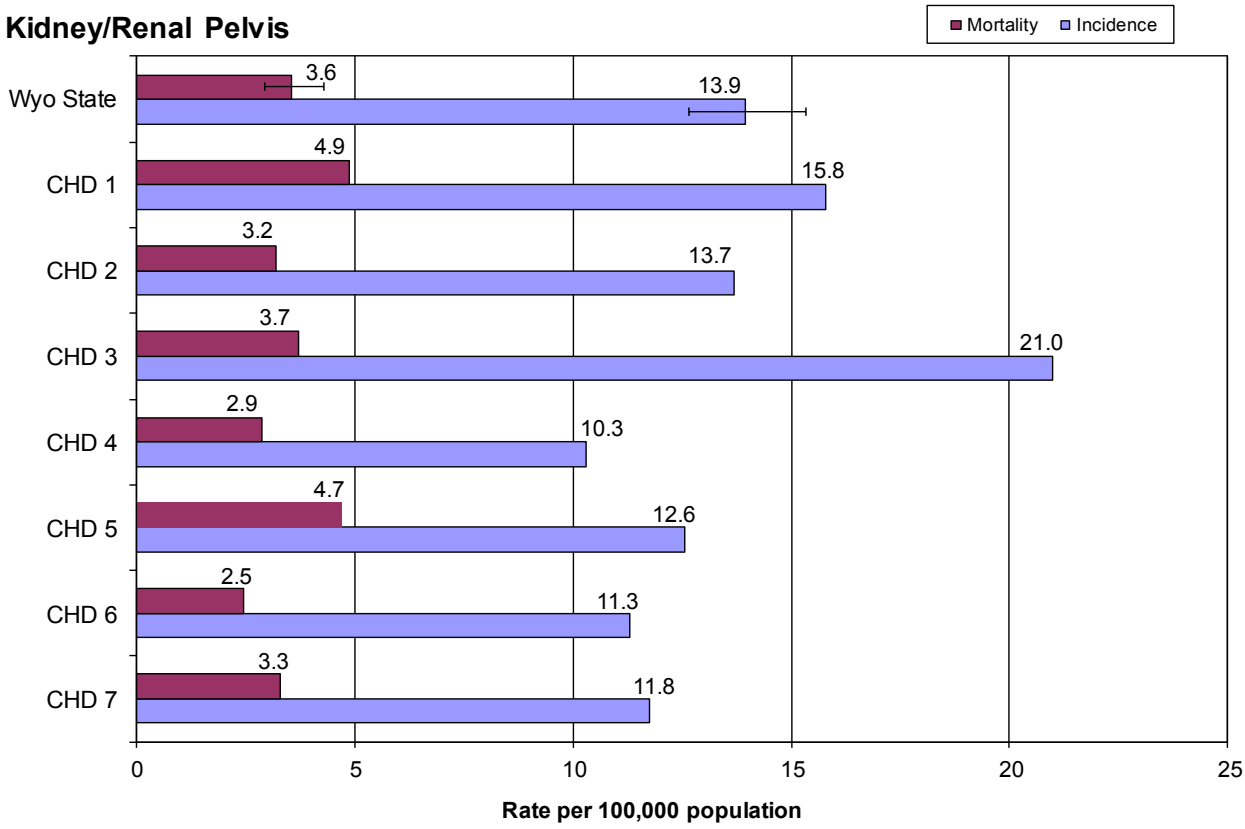
12-Year Incidence Trend



Age-Specific Incidence Rates - 2017



Cancer Health District Incidence and Mortality
5-Year Average, 2013-2017



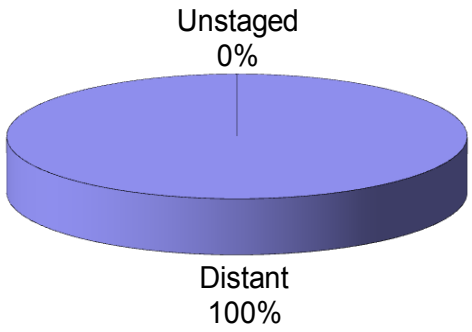
Leukemia

Incidence and Mortality Summary

	Male	Female	Total
Invasive Cases	43	28	71
WY Incidence	13.7	6.9	10.3
US Incidence	17.9	10.5	13.9
Cancer Deaths	23	13	36
WY Mortality	6.3	3.4	4.9
US Mortality	8.6	4.9	6.5

* indicates the state rate is significantly different than the national rate
NC = rate not calculated for under 5 cases/deaths

Stage at Diagnosis



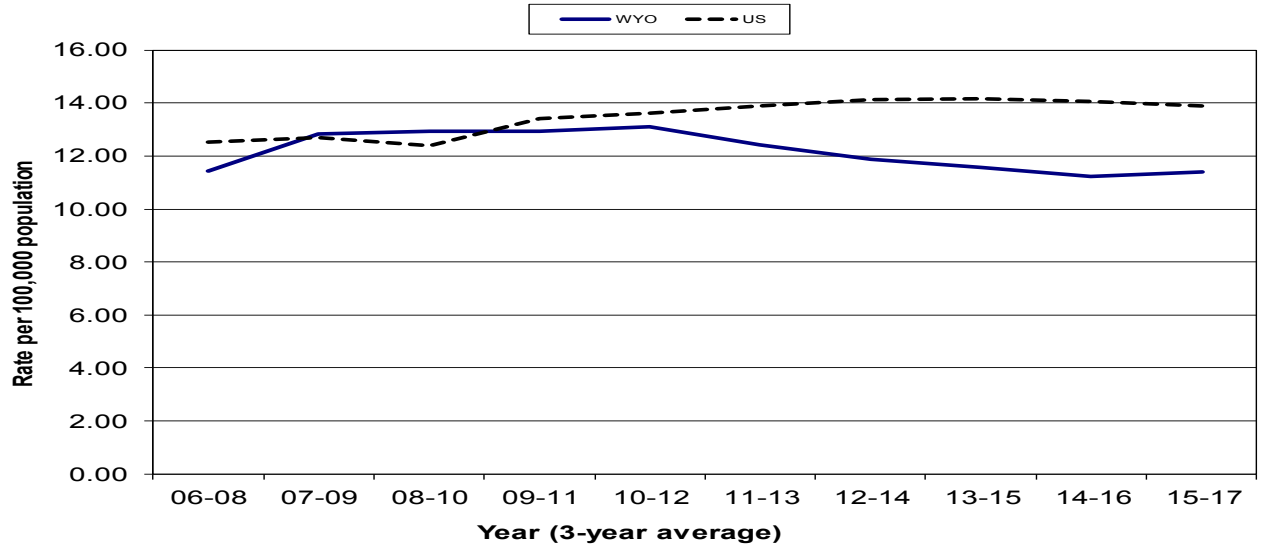
The incidence and mortality rates for leukemia in Wyoming for males, females, and total population were all lower than the national rates in 2017.

The incidence trend for Wyoming increased a little from 2014-2016 to 2015-2017, while the national rate remained steady.

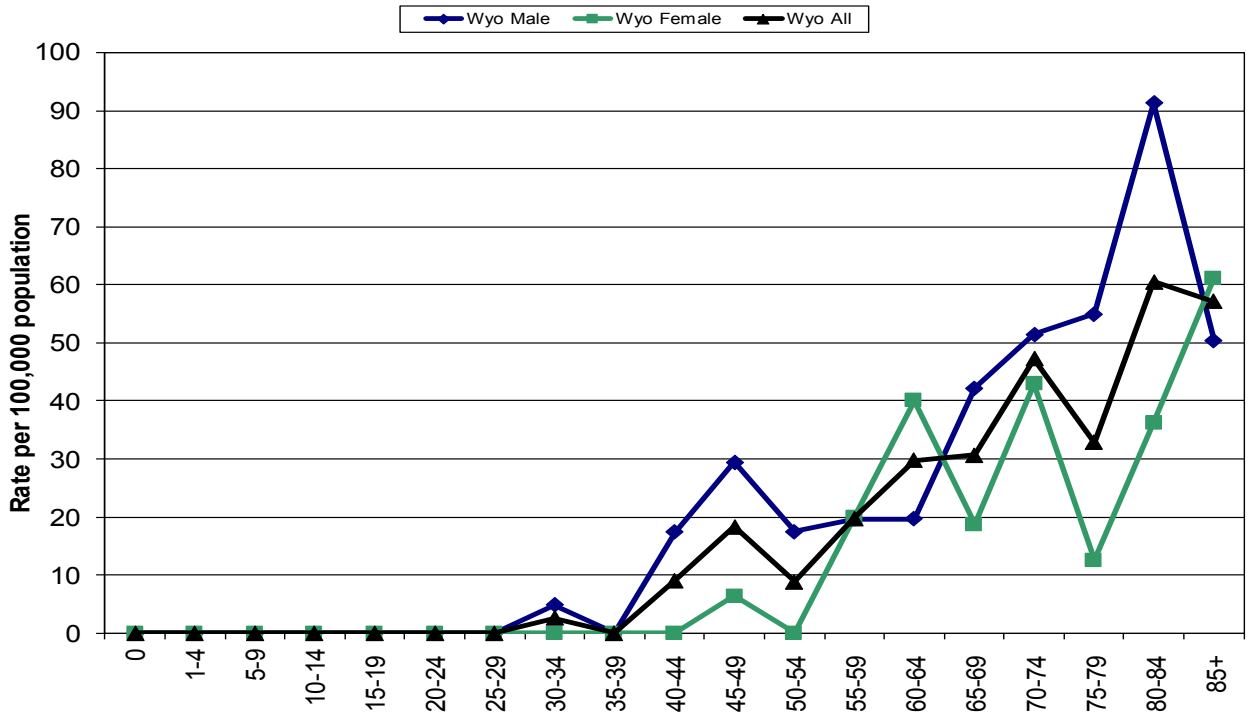
There were NO cases of leukemia diagnosed in a child under 15 years of age in 2017.

No statistically significant differences were found between the CHD rates and the state rate for incidence or mortality.

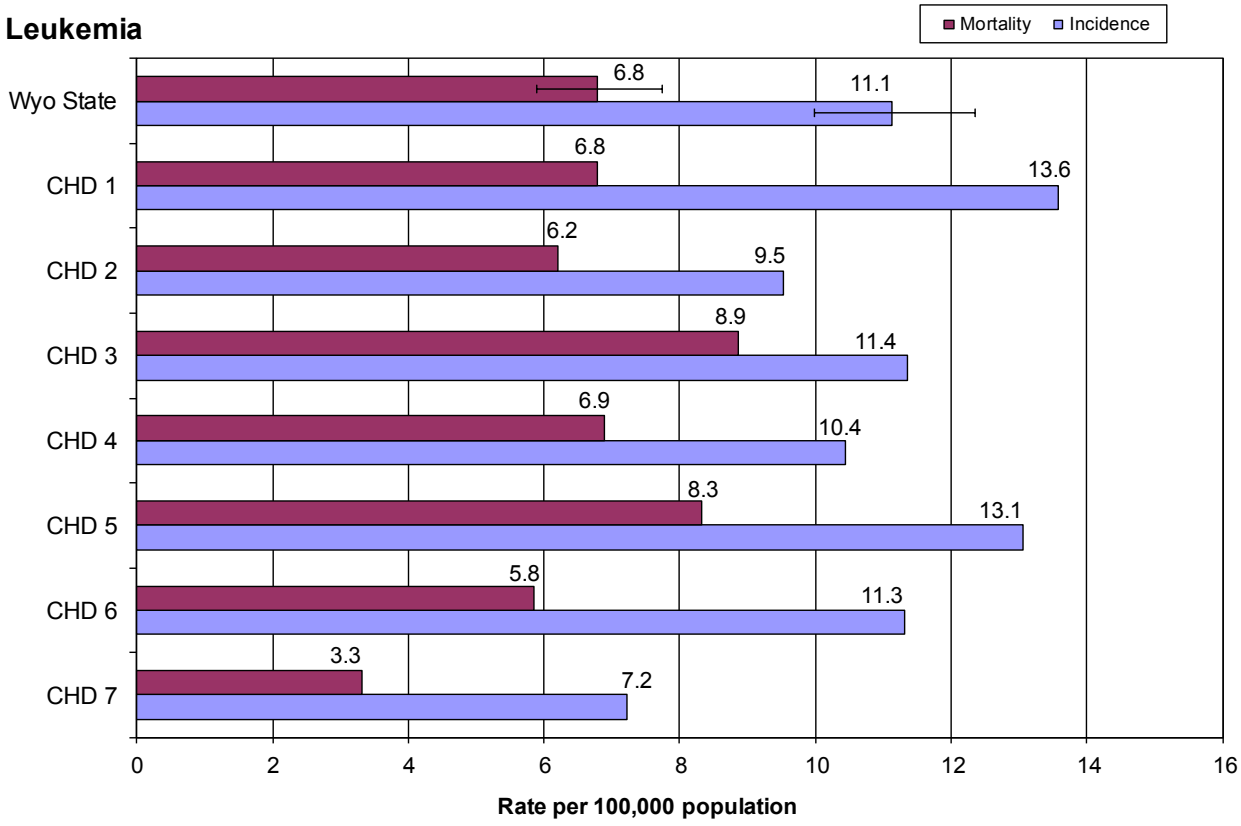
12-Year Incidence Trend



Age-Specific Incidence Rates - 2017



Cancer Health District Incidence and Mortality
5-Year Average, 2013-2017



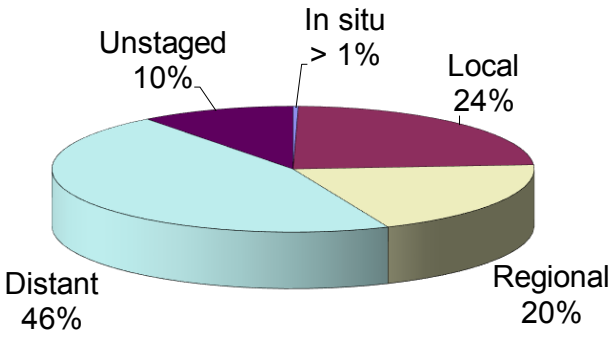
Lung and Bronchus

Incidence and Mortality Summary

	Male	Female	Total
Invasive Cases	152	127	279
WY Incidence	43.7	35.4	39.4
US Incidence	58.8	49.6	53.4
Cancer Deaths	115	99	214
WY Mortality	35.0	26.4	30.3
US Mortality	47.1	33.1	39.3

* indicates the state rate is significantly different than the national rate
NC = rate not calculated for under 5 cases/deaths

Stage at Diagnosis



Lung cancer incidence and mortality rates in Wyoming males, females, and total population continue to all be lower than the national rates in 2017. None of these difference were statistically significant.

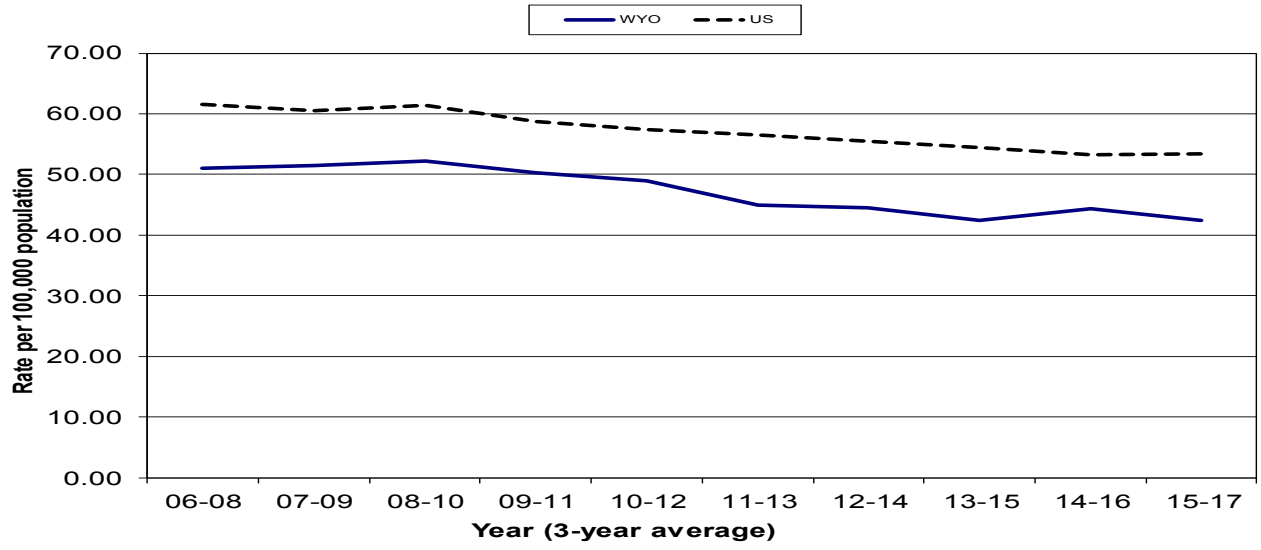
The 12-year incidence trend shows the rates for lung cancer in Wyoming decreasing from 2014-2016 to 2015-2017, whereas the national rate seems to have leveled off from 2014-2016.

The percent of cases diagnosed at each stage in 2017 nearly identical to those in 2016.

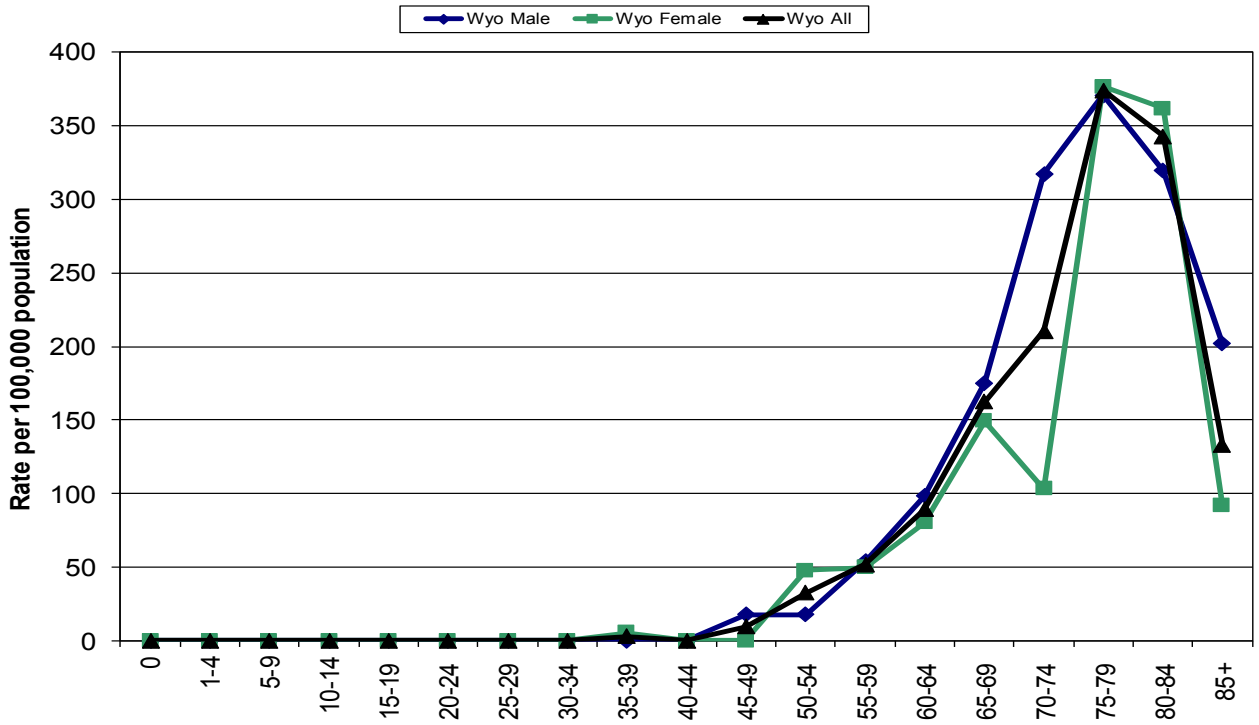
There were no cases of lung cancer diagnosed in anyone under the age of 35 in 2017.

No statistically significant differences were found between the CHD rates and the state rates.

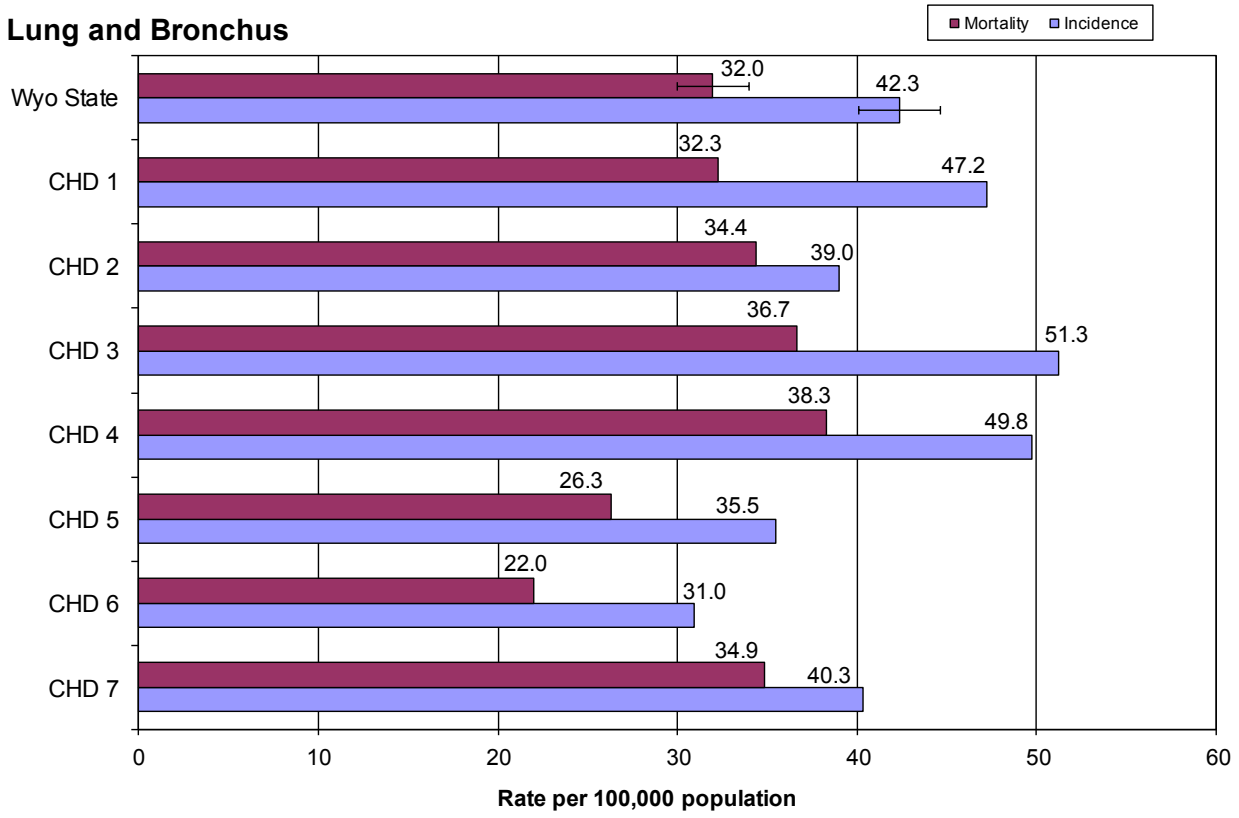
12-Year Incidence Trend



Age-Specific Incidence Rates - 2017



Cancer Health District Incidence and Mortality
5-Year Average, 2013-2017



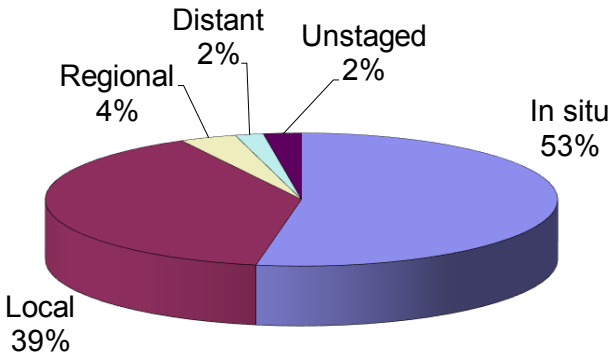
Melanoma (of the skin)

Incidence and Mortality Summary

	Male	Female	Total
Invasive Cases	85	73	158
In situ Cases	107	70	177
WY Incidence	24.9	22.2	23.1
US Incidence	34.0	21.4	26.7
Cancer Deaths	14	10	24
WY Mortality	4.6	3.1	3.8
US Mortality	3.8	1.6	2.5

* indicates the state rate is significantly different than the national rate
NC = rate not calculated for under 5 cases/deaths

Stage at Diagnosis



The incidence rates for melanoma for Wyoming males and total population were lower than the national rates, whereas the female rate was higher. The mortality rates for all Wyoming populations were higher than the national rate in 2017, though no difference was statistically significant.

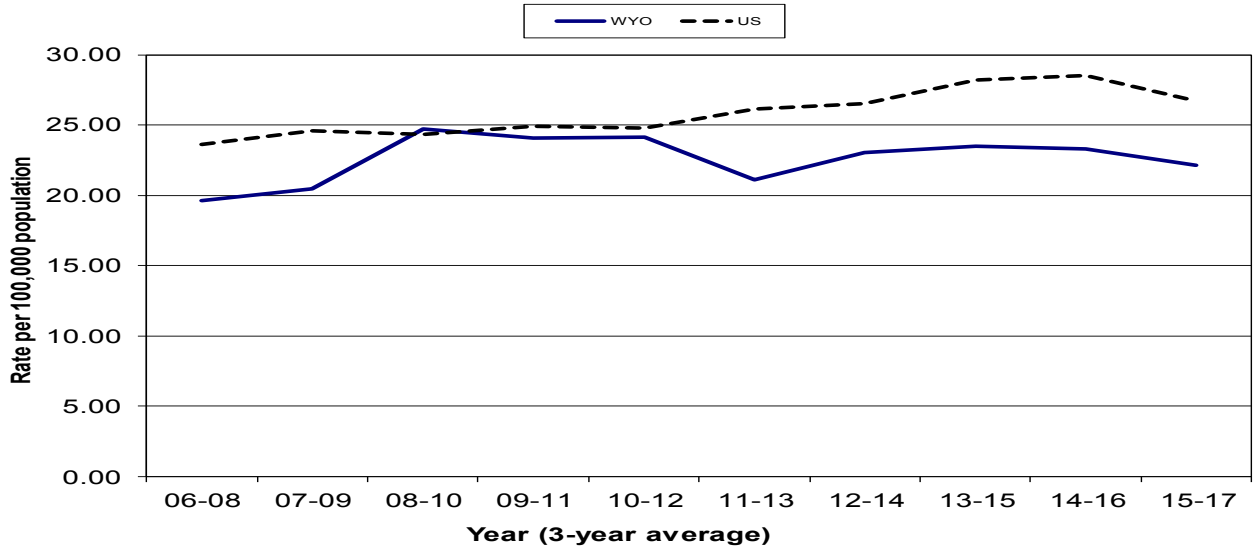
There were three cases of melanoma in individuals under 30 years of age in 2017, with one case in a child between 10-14 years old.

Both incidence trends appear to be decreasing slowly since 2014-2016.

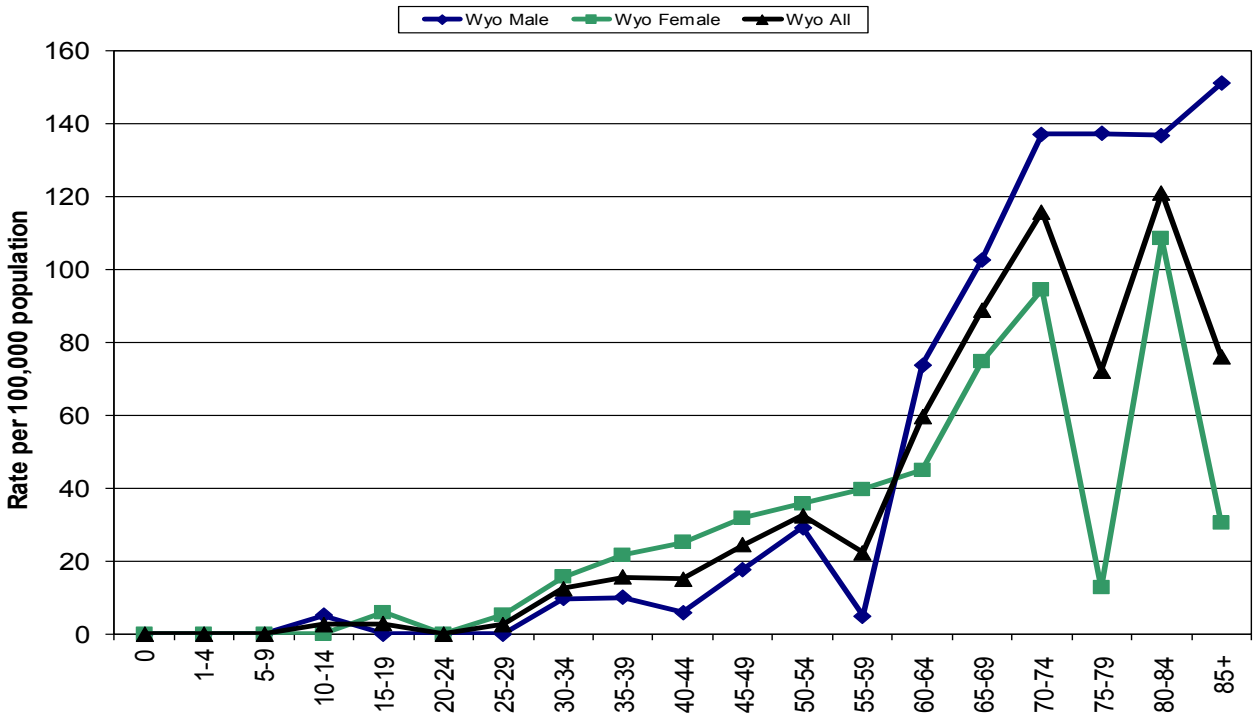
The percentage of cases diagnosed as In situ and Local both increased since 2016 (49% and 34% respectively), whereas regional decreased (9% in 2016).

No statistically significant differences were found between the CHD and state rates.

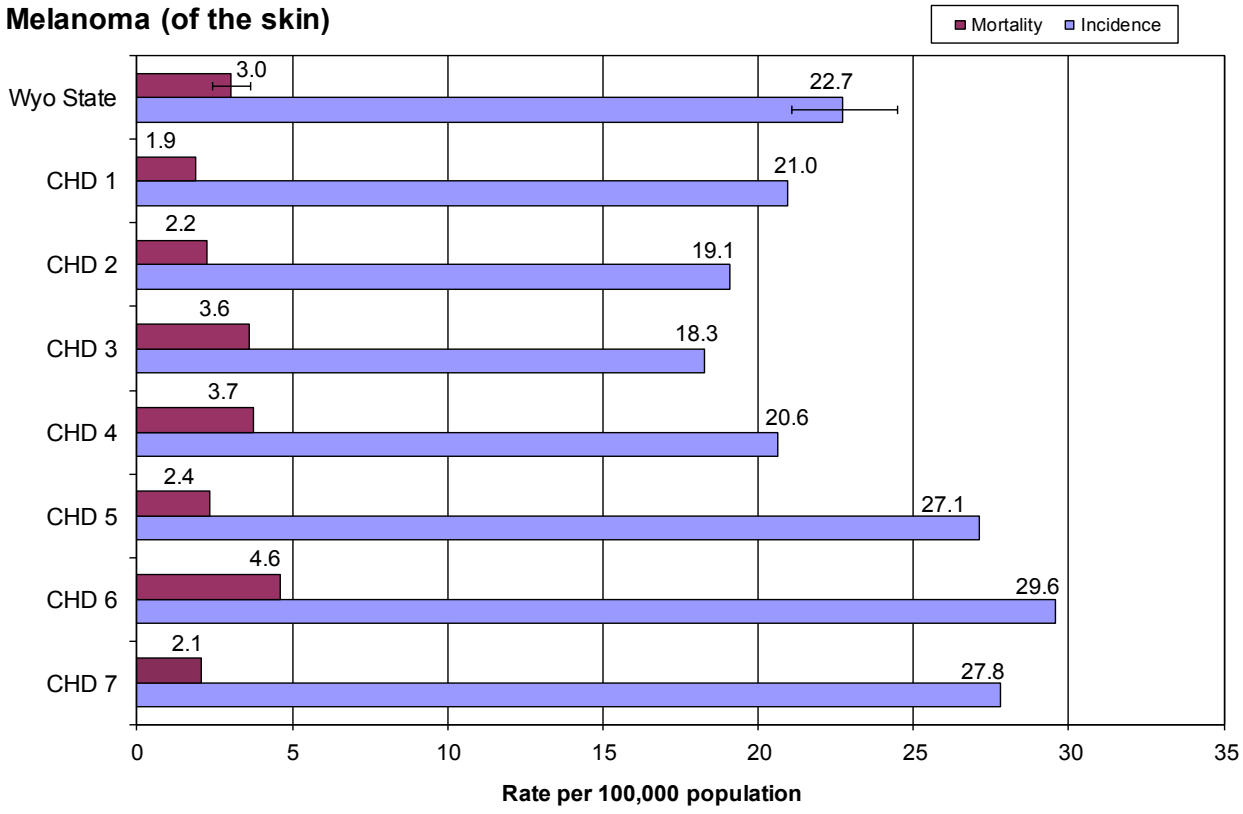
12-Year Incidence Trend



Age-Specific Incidence Rates - 2017



Cancer Health District Incidence and Mortality
5-Year Average, 2013-2017



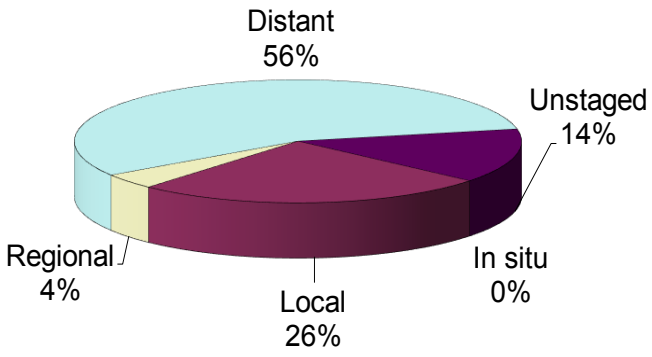
Non-Hodgkin Lymphoma (NHL)

Incidence and Mortality Summary

	Male	Female	Total
Invasive Cases	58	40	98
WY Incidence	17.9	11.5	14.4
US Incidence	23.6	16.5	19.7
Cancer Deaths	14	12	26
WY Mortality	4.8	3.4	4.1
US Mortality	7.2	4.4	5.6

* indicates the state rate is significantly different than the national rate
NC = rate not calculated for under 5 cases/deaths

Stage at Diagnosis



The incidence and mortality rates for Non-Hodgkin lymphoma in Wyoming were all lower than the national rates in 2017.

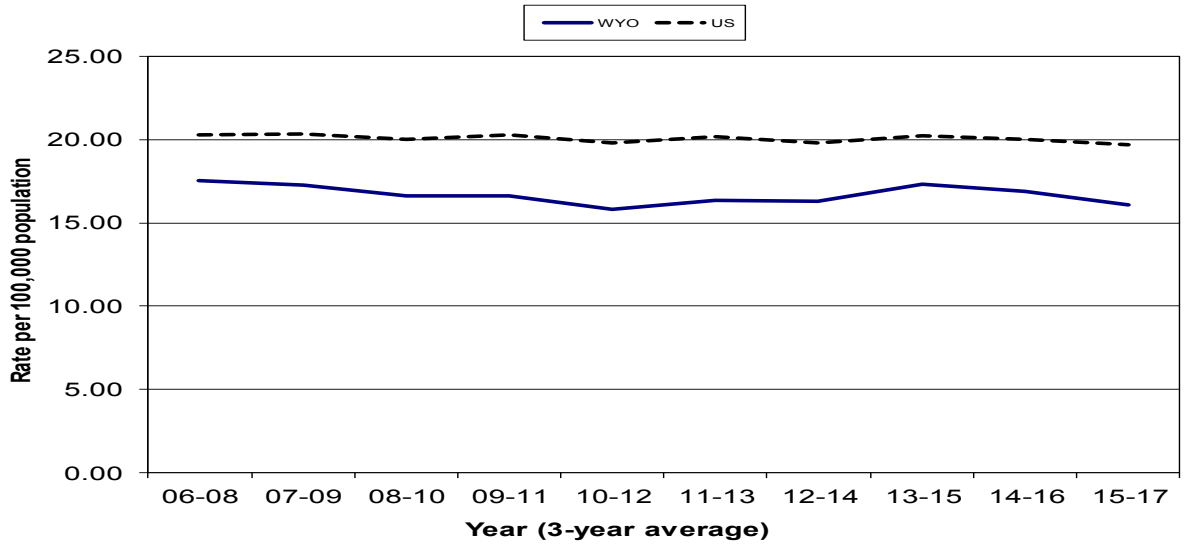
The incidence trend for Wyoming shows a decrease starting in 2013-2015, while the national rate remained basically level since 2006-2008.

There was only one case of NHL diagnosed under the age of 25 in 2017.

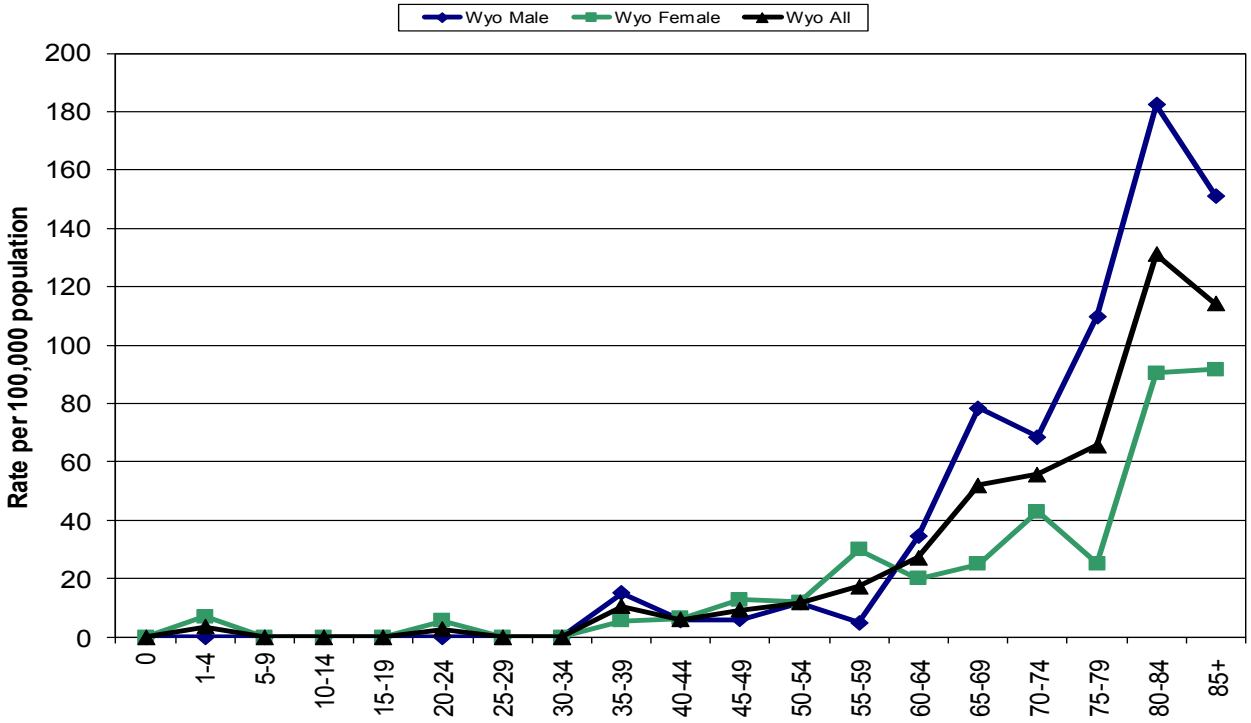
The percentage of cases diagnosed as Local increased significantly from 2016 (14%), whereas cases diagnosed as Regional decreased by half from 2016 (8%).

No statistically significant differences were found between the CHD rates and the state rates.

12-Year Incidence Trend

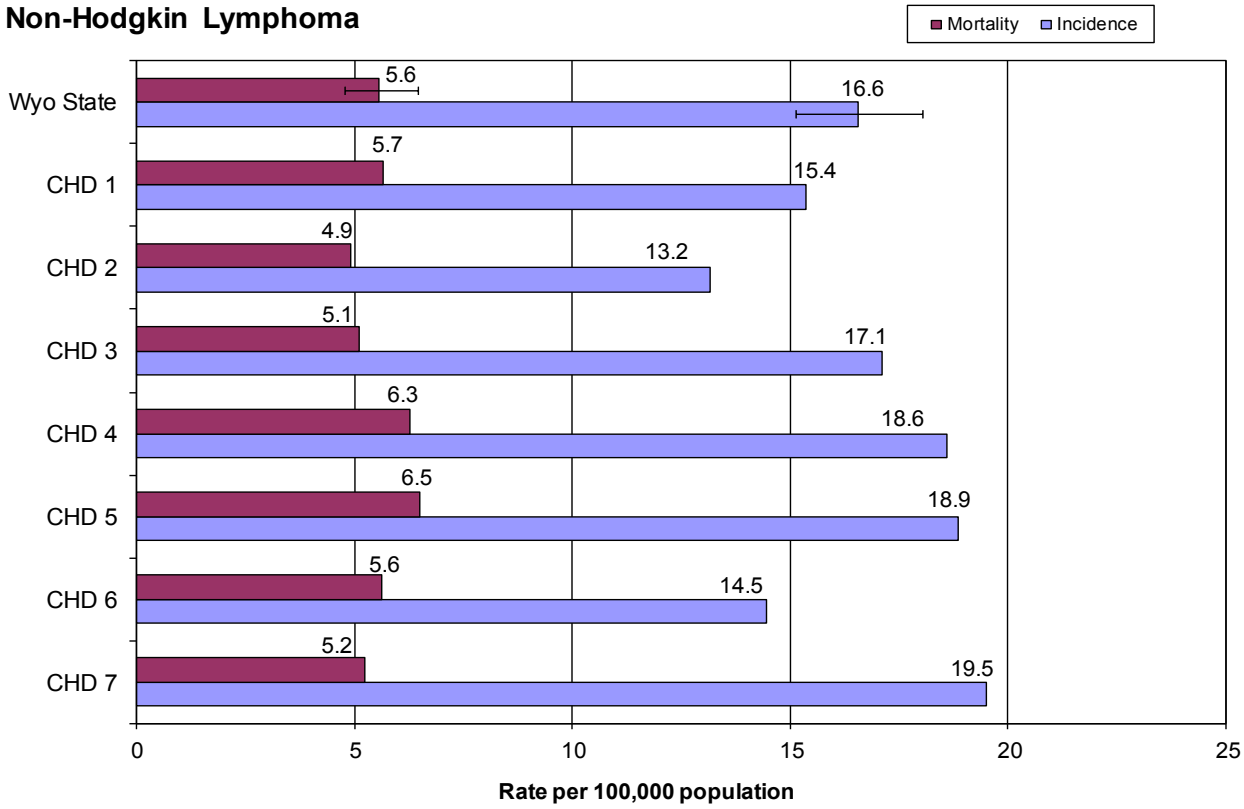


Age-Specific Incidence Rates - 2017



Cancer Health District Incidence and Mortality
5-Year Average, 2013-2017

Non-Hodgkin Lymphoma



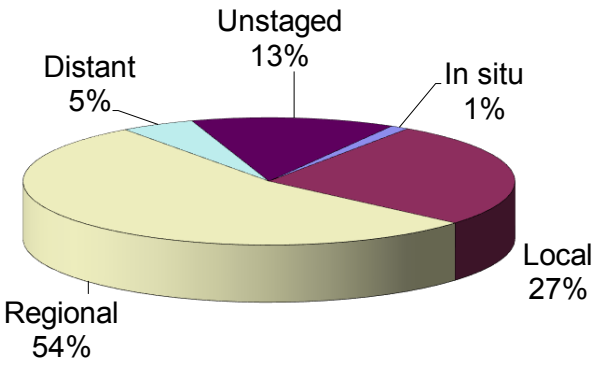
Oral Cavity and Pharynx

Incidence and Mortality Summary

	Male	Female	Total
Invasive Cases	58	23	81
WY Incidence	17.2	6.1	11.6
US Incidence	18.0	6.5	11.9
Cancer Deaths	12	7	19
WY Mortality	3.6	1.8	2.7
US Mortality	4.0	1.4	2.6

* indicates the state rate is significantly different than the national rate
NC = rate not calculated for under 5 cases/deaths

Stage at Diagnosis



The incidence rates for cancer of the oral cavity and pharynx in Wyoming were all lower than the national rates. The mortality rates for females and total population were a little higher than the national rates, while the mortality rate for males was slightly lower than the nation.

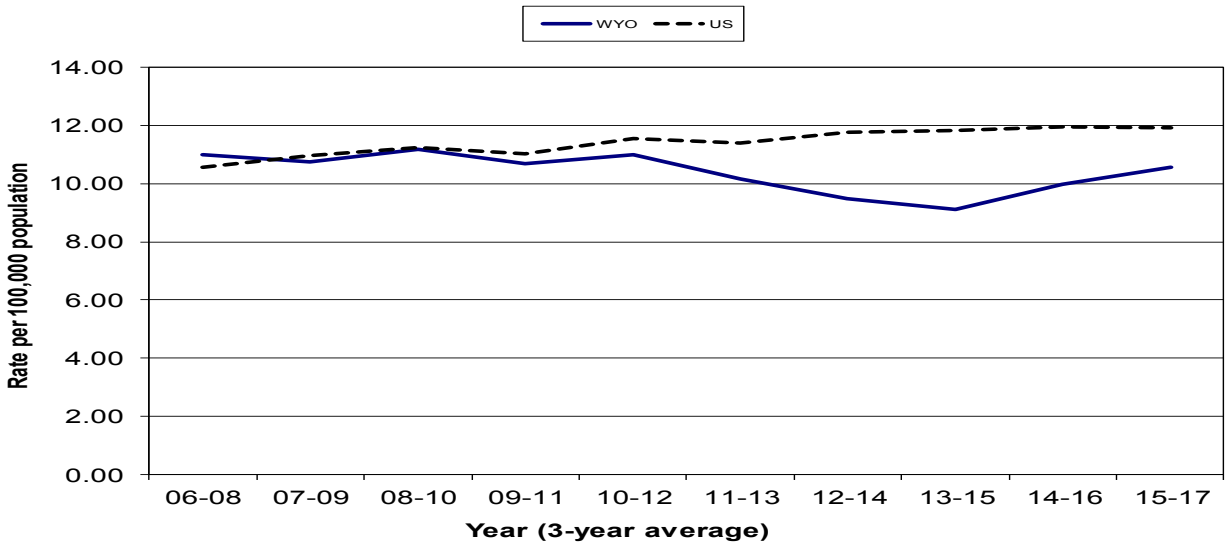
The incidence trend for Wyoming shows a continuing increase from 2013-2015 to 2015-2017, while the national rate looks basically level.

There were no cases diagnosed in people under 30 years of age in 2017.

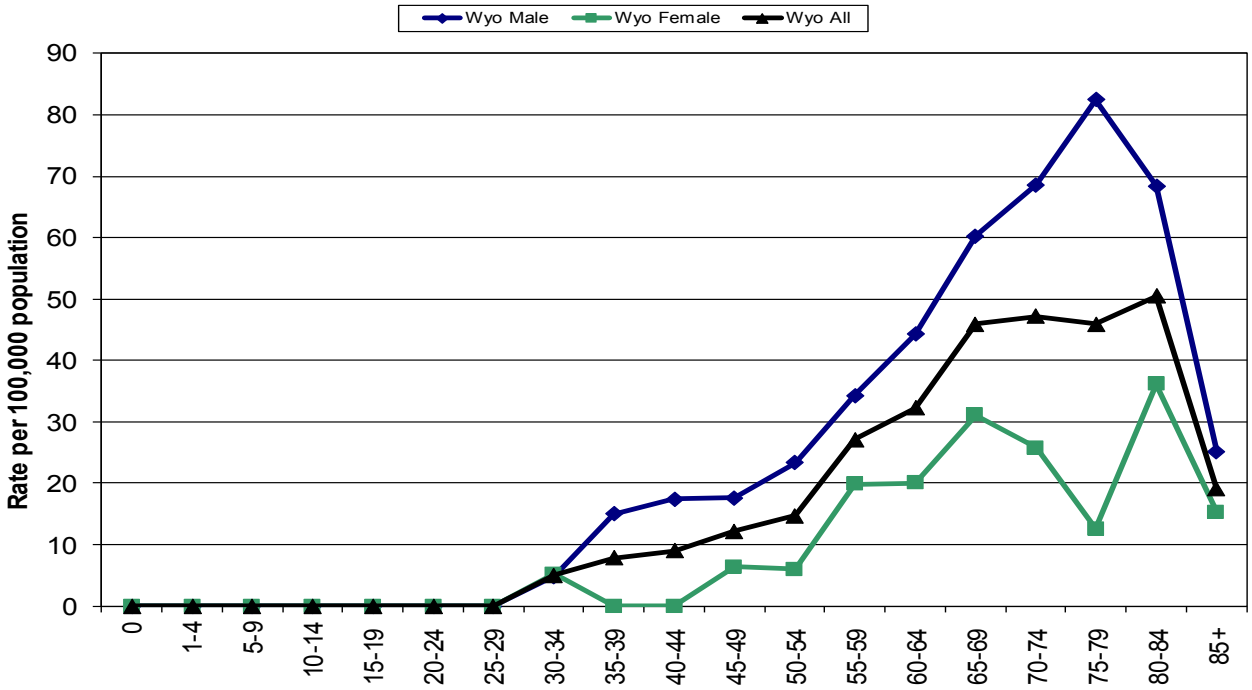
The percent of cancers diagnosed at the Local stage decreased significantly from 2016 (42%), whereas the cases diagnosed as Regional increased from 2016 (42%).

No statistically significant differences were found between the CHD rates and the state rate.

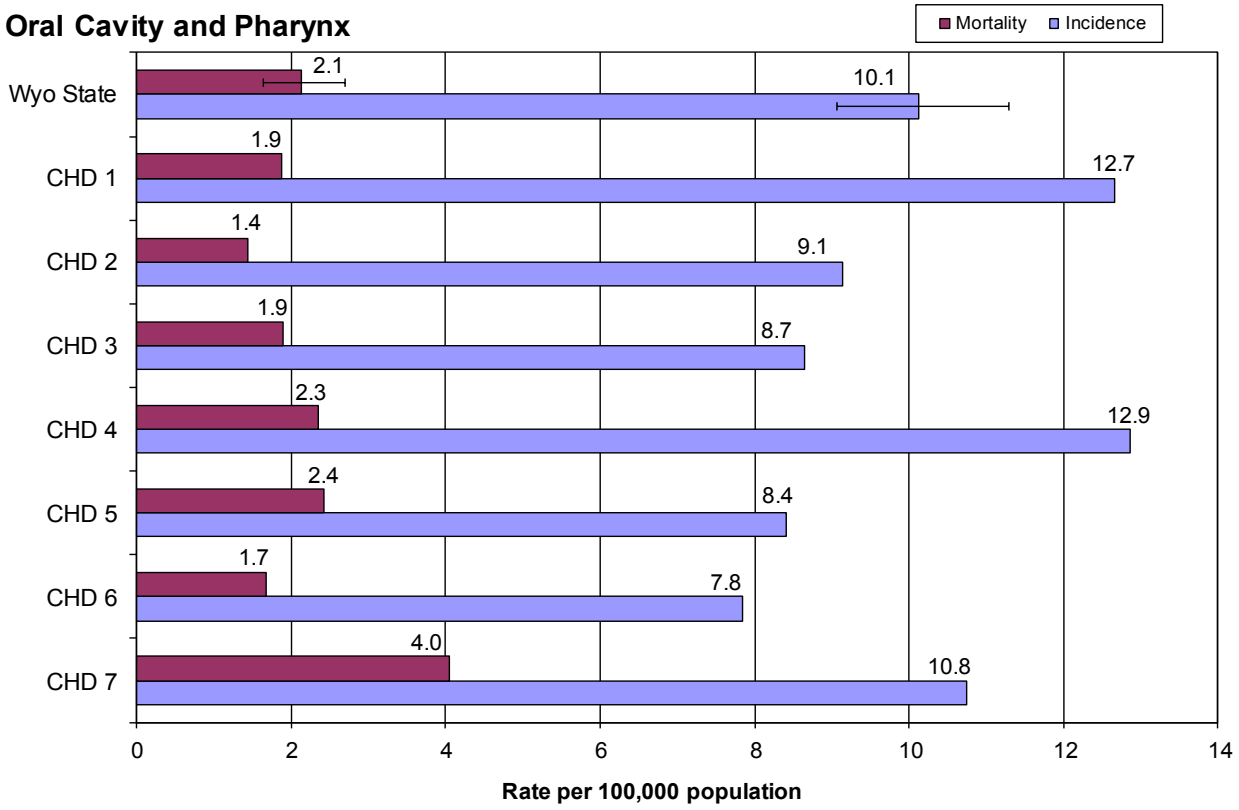
12-Year Incidence Trend



Age-Specific Incidence Rates - 2017



Cancer Health District Incidence and Mortality
5-Year Average, 2013-2017



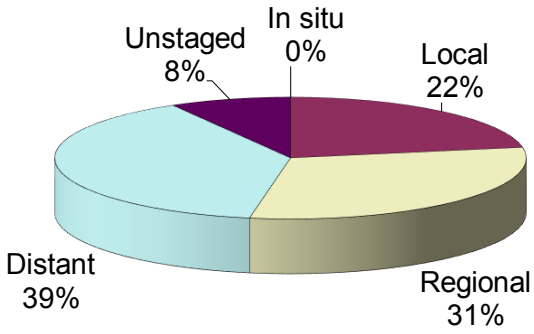
Ovary

Incidence and Mortality Summary

	Female
Invasive Cases	36
WY Incidence	10.7
US Incidence	10.9
Cancer Deaths	31
WY Mortality	8.3
US Mortality	7.0

* indicates the state rate is significantly different than the national rate
NC = rate not calculated for under 5 cases/deaths

Stage at Diagnosis



The incidence rate in Wyoming females for ovarian cancer was essentially the same as the national rate, while the Wyoming mortality rate was higher than the national rate.

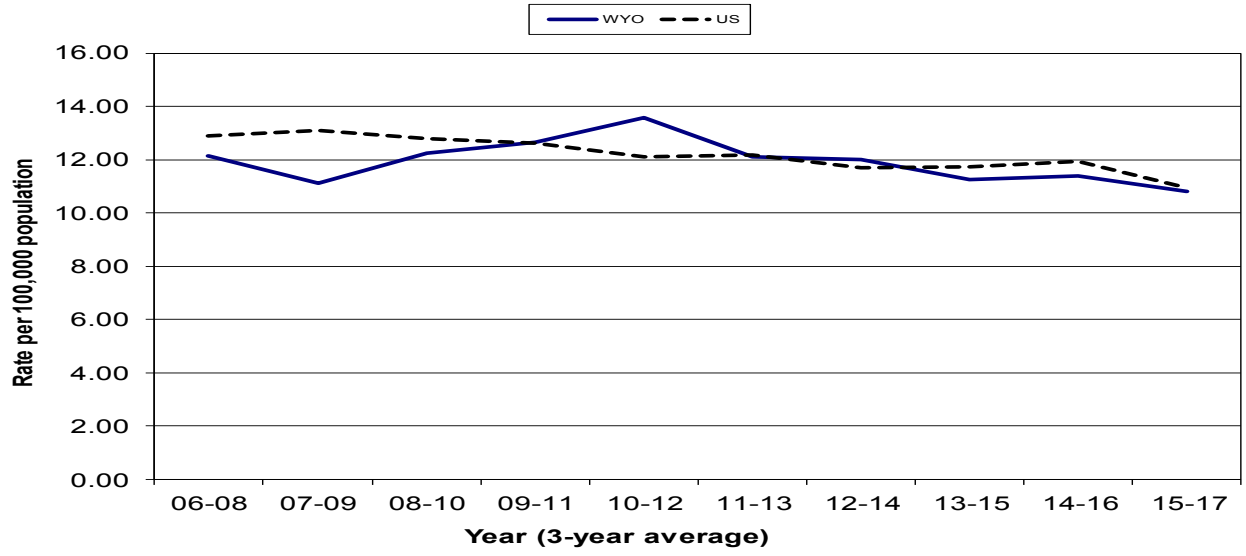
The 12-year incidence trend shows a small decrease for both Wyoming and the US since 2014-2016.

There were NO case diagnosed in Wyoming women under 20 years of age in 2017.

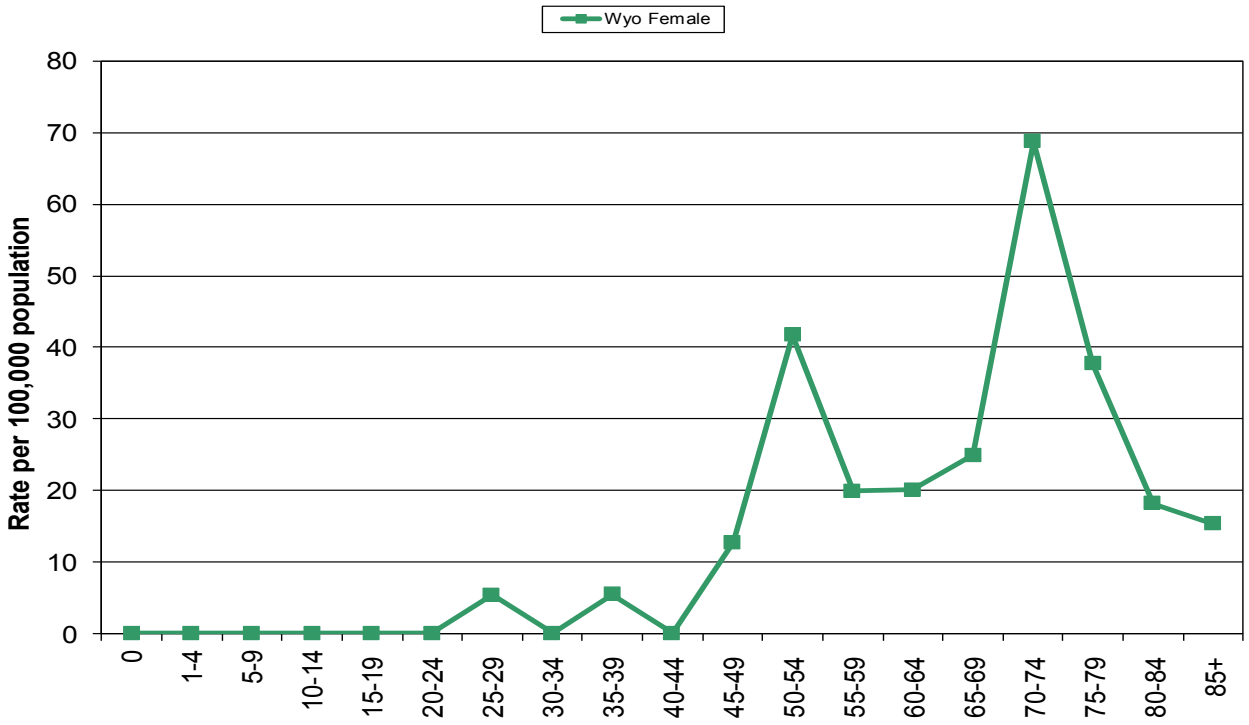
There was a substantial but non-significant decrease in the percentage of cases diagnosed as Distant compared to 2016 (50%), while the percent diagnosed as Regional increased since 2016 (22%).

No statistically significant differences were found between the CHD rates and the state rate.

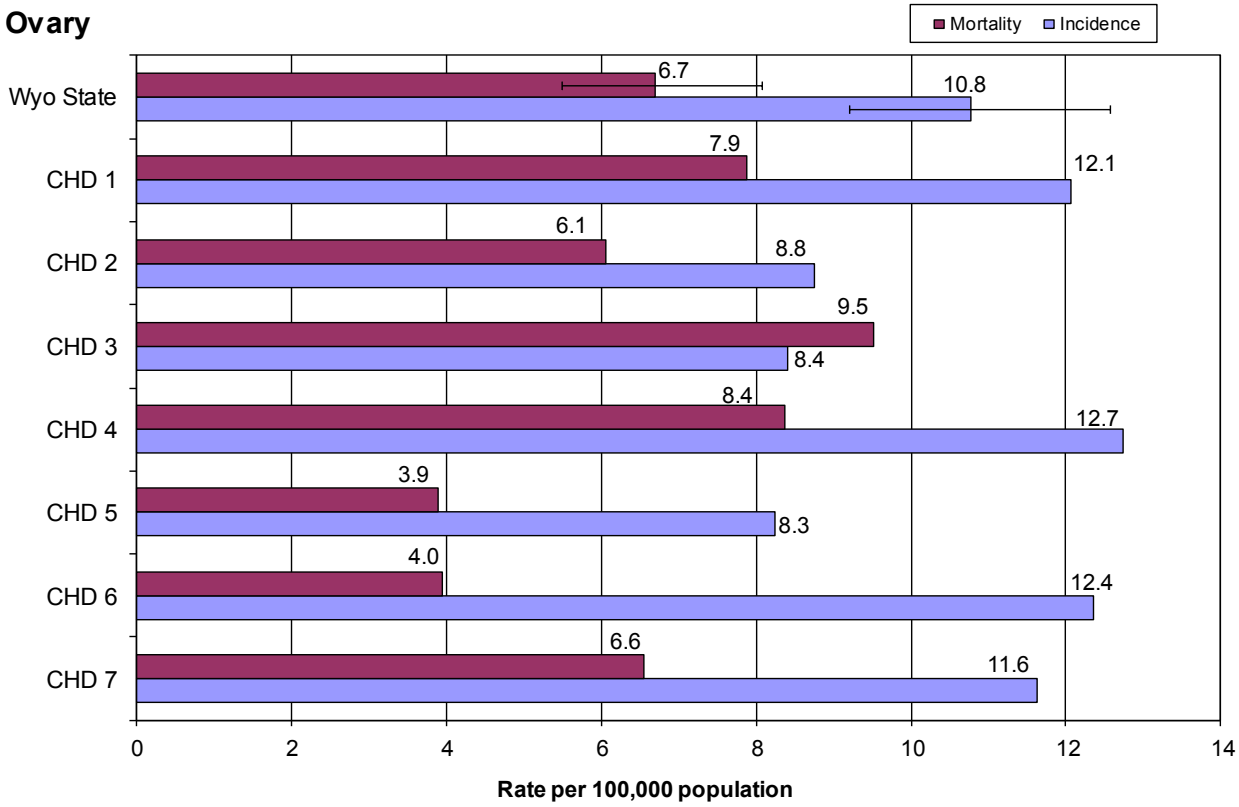
12-Year Incidence Trend



Age-Specific Incidence Rates - 2017



Cancer Health District Incidence and Mortality
5-Year Average, 2013-2017



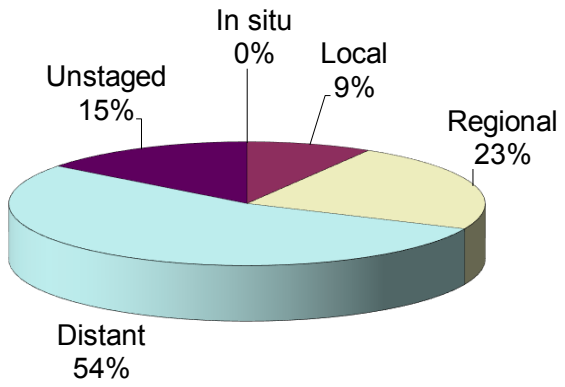
Pancreas

Incidence and Mortality Summary

	Male	Female	Total
Invasive Cases	55	27	82
WY Incidence	15.5	7.6	11.5
US Incidence	14.4	11.3	12.7
Cancer Deaths	48	27	73
WY Mortality	13.2	7.4	10.3
US Mortality	12.7	9.6	11.0

* indicates the state rate is significantly different than the national rate
NC = rate not calculated for under 5 cases/deaths

Stage at Diagnosis



The incidence and mortality rates for Wyoming females and total population were lower than the national rates, whereas the male rates were both higher than the national incidence and mortality rates.

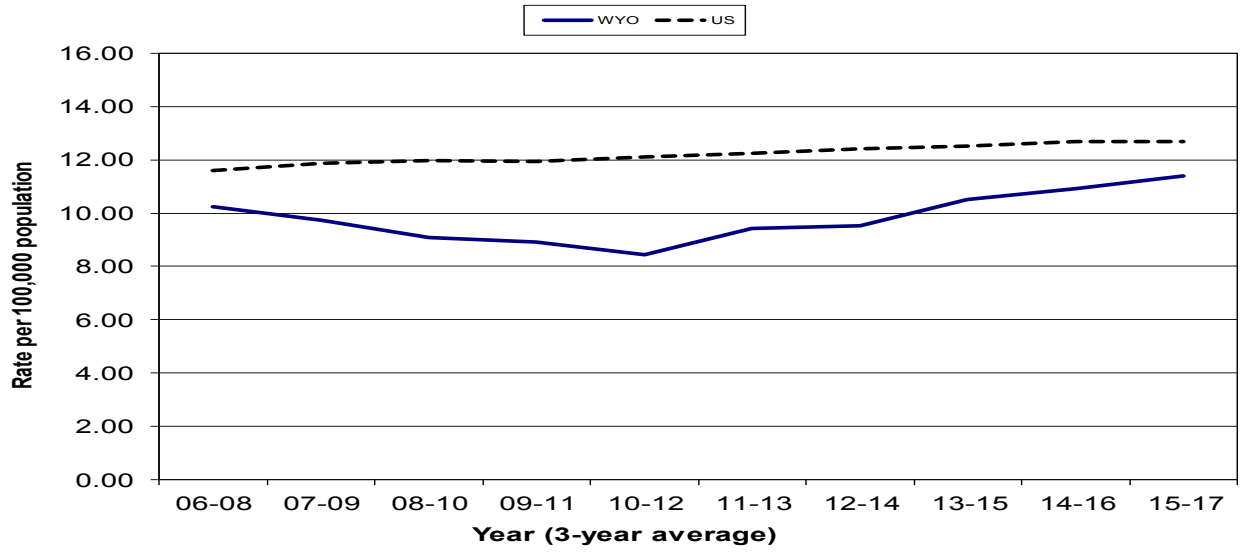
The incidence trend for Wyoming and the nation continues an increase that started in 2010-2012. The national rate seems to be increasing as well, though slower than the Wyoming rate.

There was once case diagnosed in a Wyoming resident under the age of 20 in 2017.

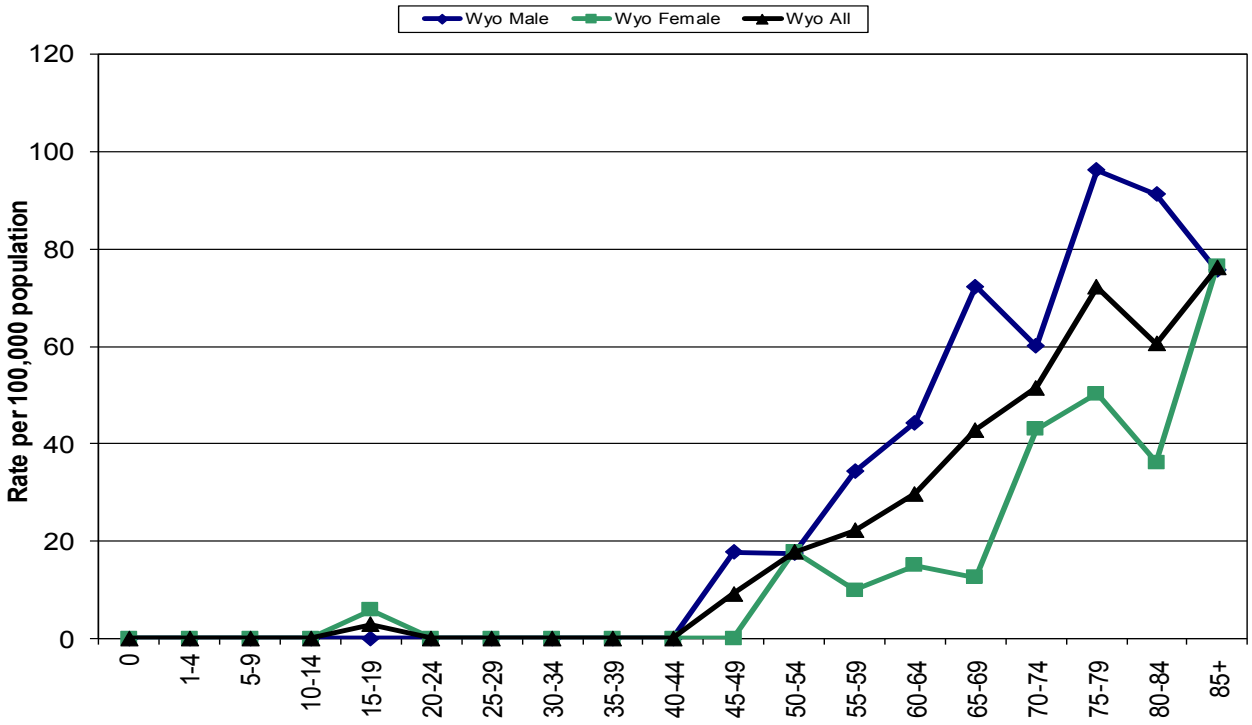
The percentage of cancer diagnosed as Local and Regional both decreased (12% and 36% respectively), while the percentage diagnosed as Distant increased from 2016 (43%) to 2017.

No statistically significant differences were found between the CHD rates and the state rate for incidence or mortality.

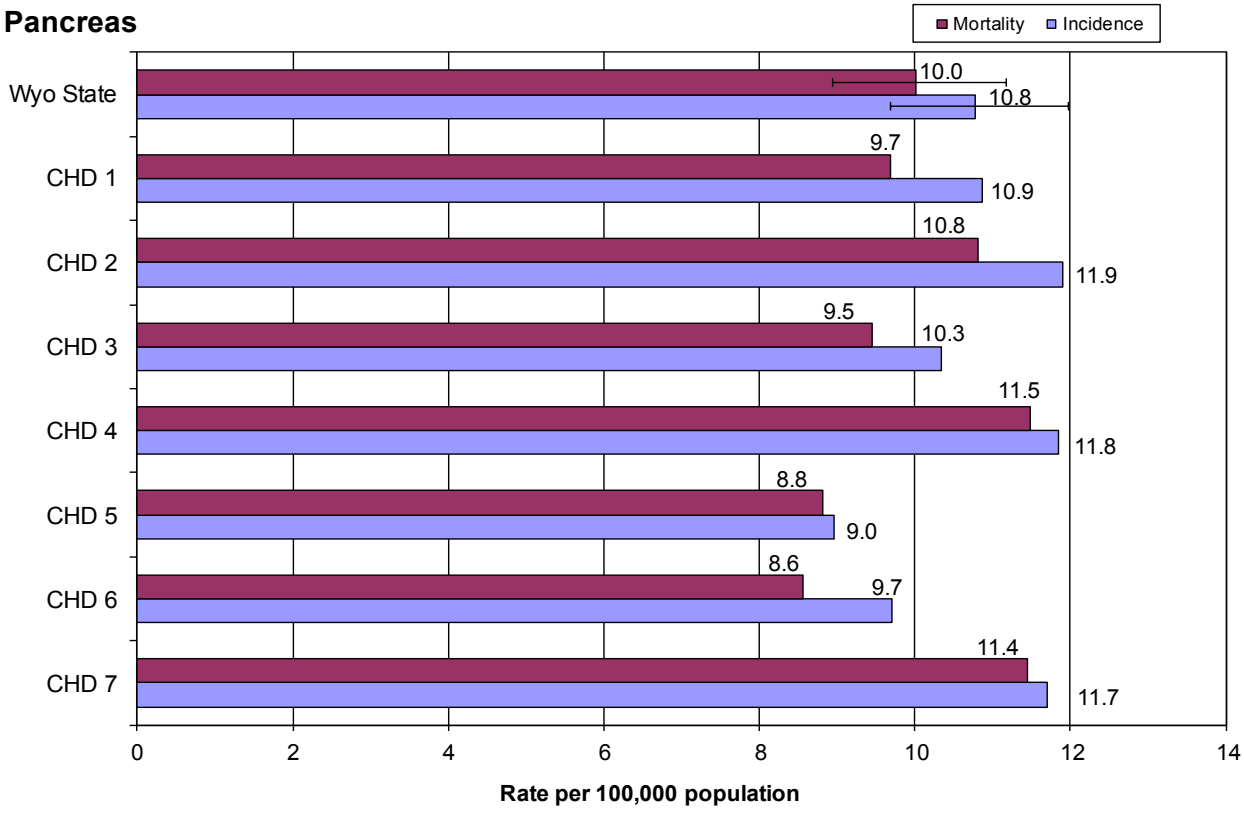
12-Year Incidence Trend



Age-Specific Incidence Rates - 2017



Cancer Health District Incidence and Mortality
5-Year Average, 2013-2017



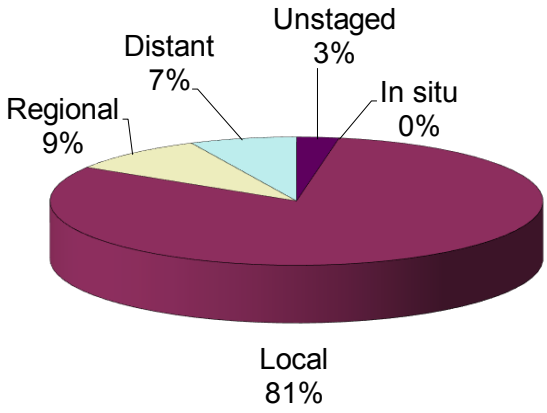
Prostate

Incidence and Mortality Summary

	Male
Invasive Cases	469
WY Incidence	121.7
US Incidence	98.9
Cancer Deaths	40
WY Mortality	13.1
US Mortality	18.2

* indicates the state rate is significantly different than the national rate
NC = rate not calculated for under 5 cases/deaths

Stage at Diagnosis



The incidence rate for prostate cancer in Wyoming males was higher than the national rate in 2017, while the mortality rate was lower than the national rate.

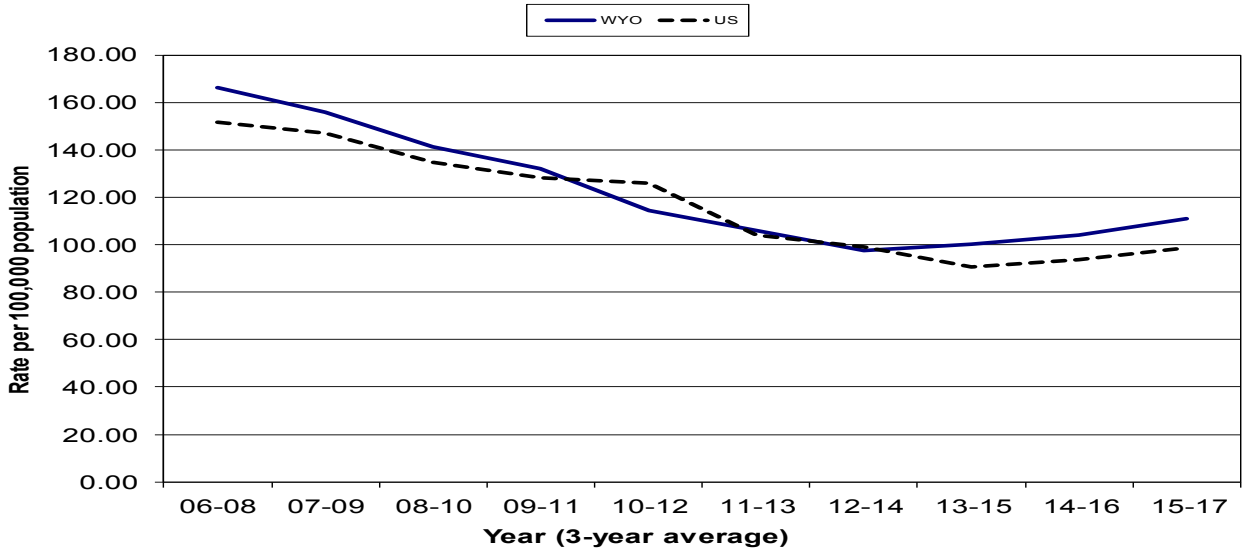
The incidence trend shows the Wyoming and national rate both increasing since 2013-2015. There were 117 more cases diagnosed in Wyoming in 2017 than in 2016.

There were only four cases diagnosed in Wyoming men under the age of 50 in 2017.

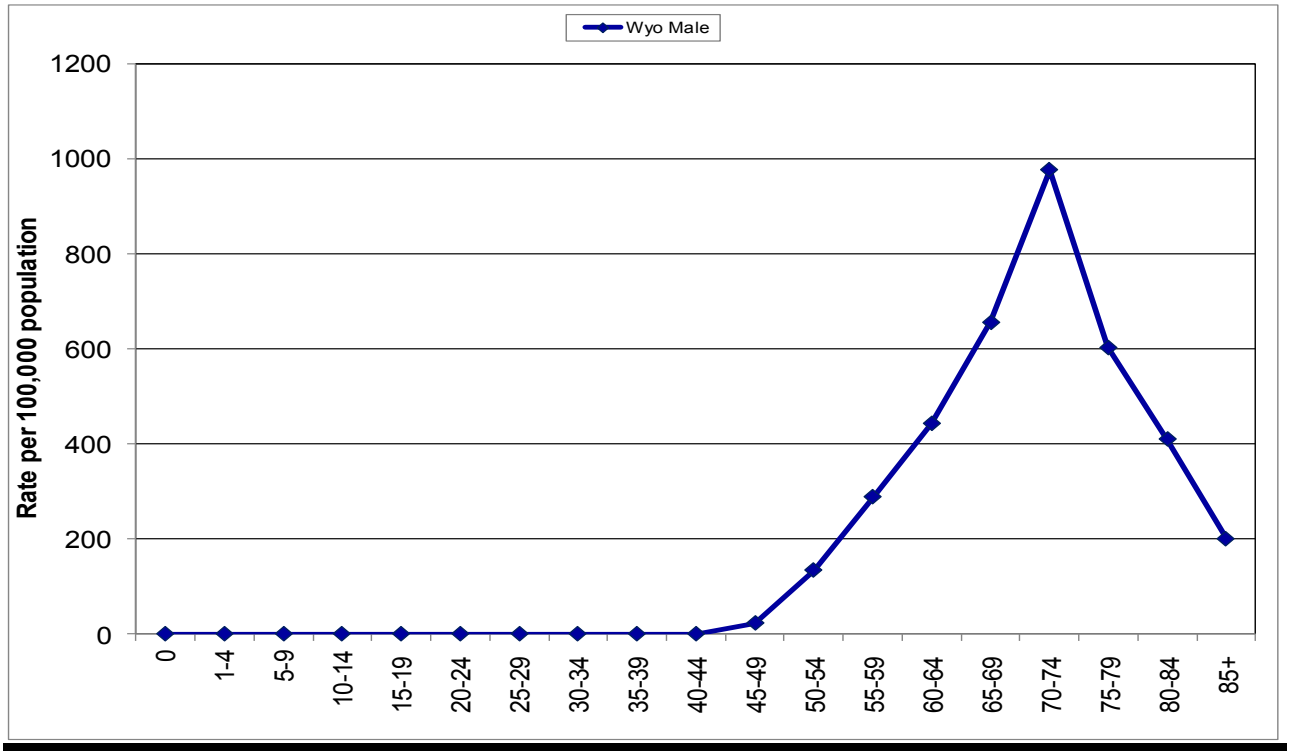
The percentage of cases diagnosed as Local increased from 2016 (73%), while the percentage diagnosed as Regional decreased from 2016 (14%).

No statistically significant differences were found between the CHD rates and the state rates.

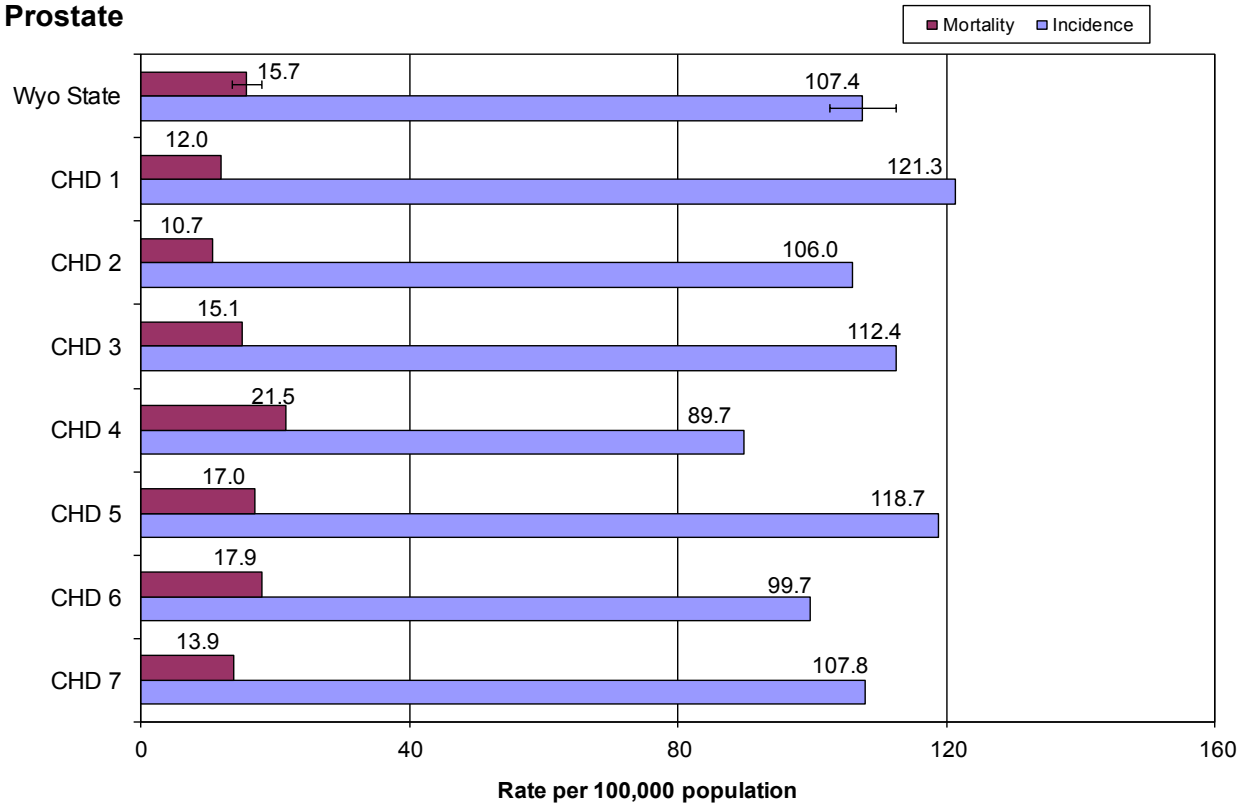
12-Year Incidence Trend



Age-Specific Incidence Rates - 2017



Cancer Health District Incidence and Mortality
5-Year Average, 2013-2017



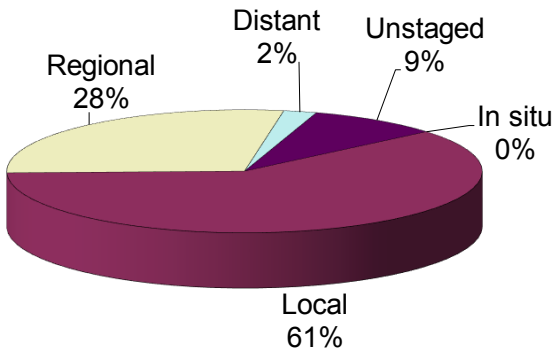
Thyroid

Incidence and Mortality Summary

	Male	Female	Total
Invasive Cases	26	63	89
WY Incidence	7.9	22.8	15.1
US Incidence	8.2	23.5	15.8
Cancer Deaths	NC	NC	NC
WY Mortality	NC	NC	NC
US Mortality	0.5	0.5	0.5

* indicates the state rate is significantly different than the national rate
NC = rate not calculated for under 5 cases/deaths

Stage at Diagnosis



The incidence rate for thyroid cancer in males, females and total population were all lower than the national rates in 2017. None of the Wyoming mortality rates were calculated due to low numbers.

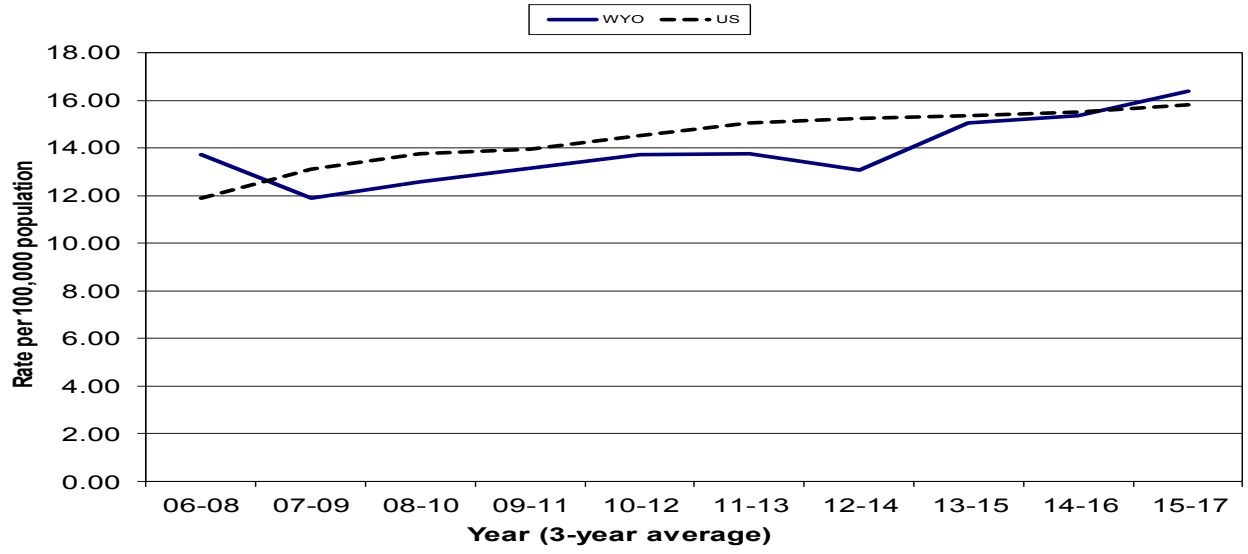
The trend of thyroid cancer incidence in Wyoming and the nation are both increasing though the national rate is not as steep as the rate for Wyoming.

There were two cases diagnosed in Wyoming residents under the age of 20 in 2017.

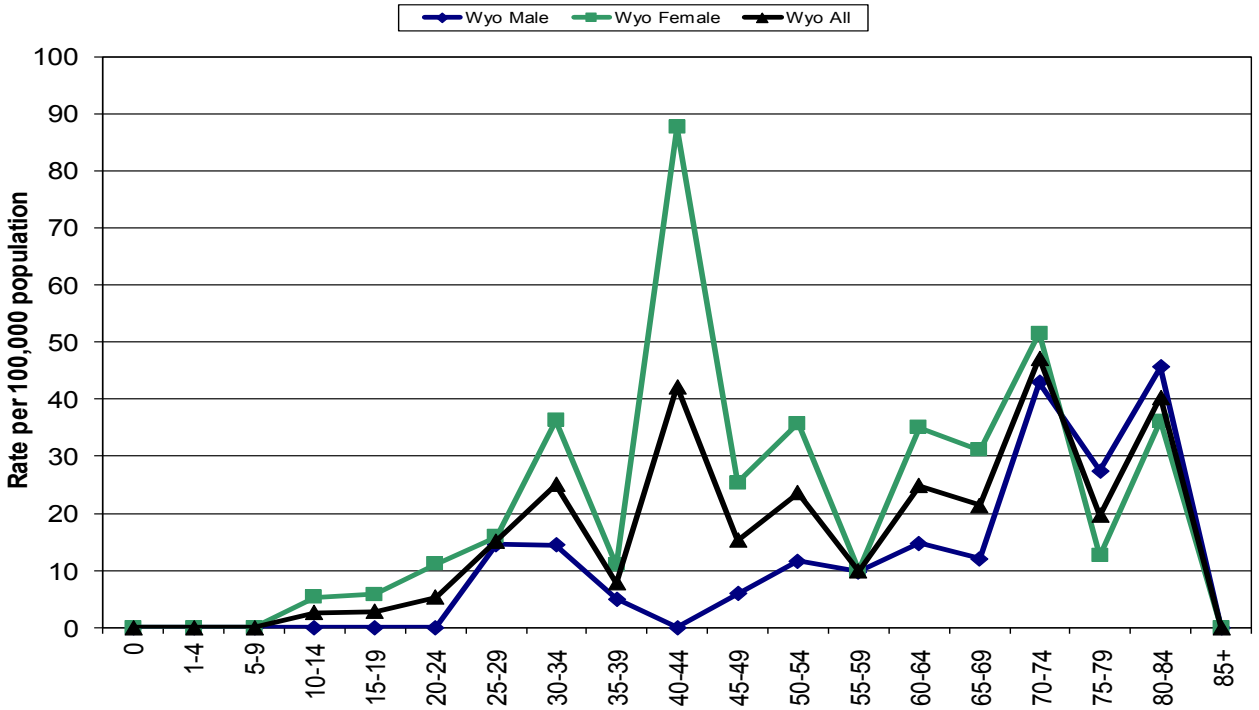
The percentage diagnosed as Regional decreased from 2016 (38%), while the percentage reported as Unstaged increased from 2016 (2%).

No statistically significant differences were found between the CHD rates and state rate for incidence.

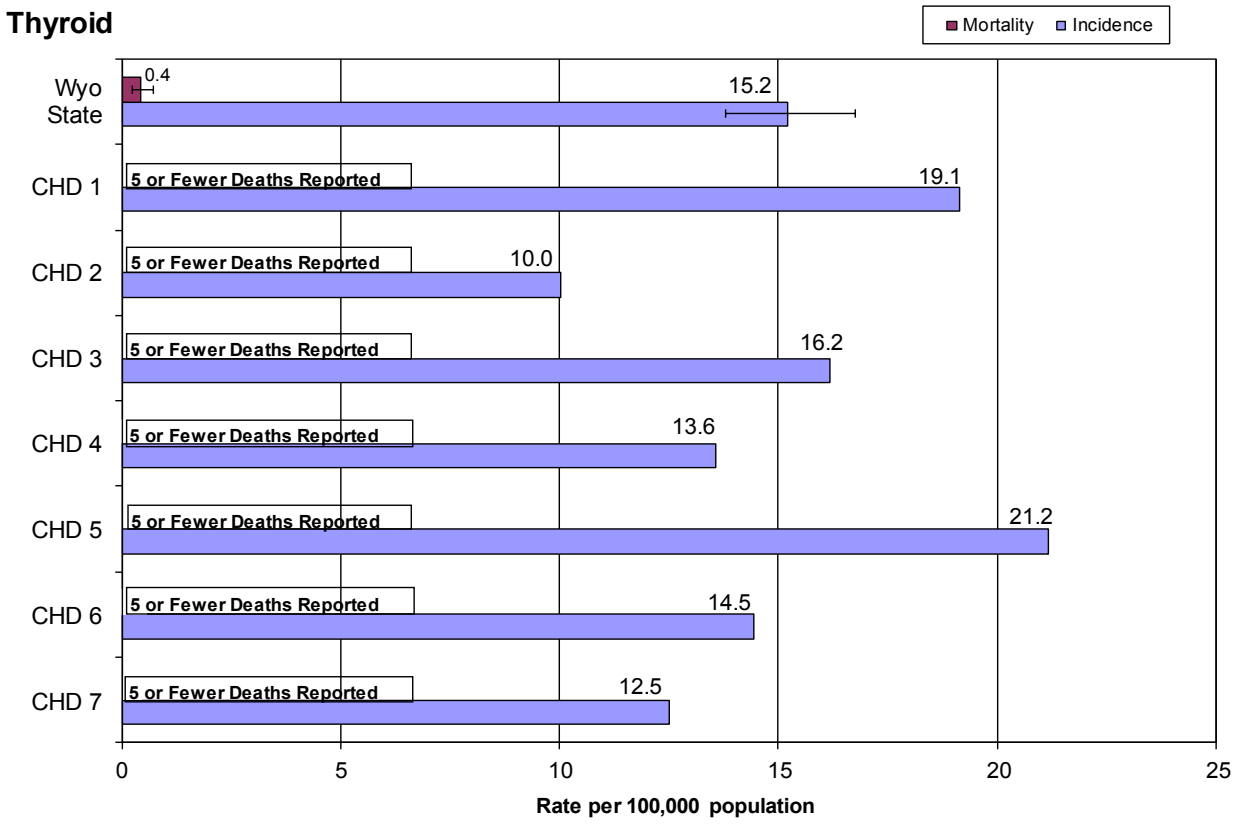
12-Year Incidence Trend



Age-Specific Incidence Rates - 2017



Cancer Health District Incidence and Mortality
5-Year Average, 2013-2017



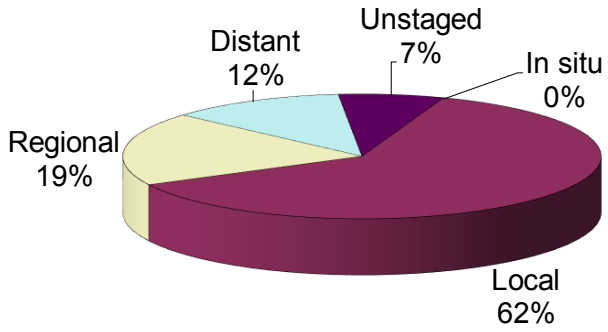
Uterine (Corpus Uteri + Uterus)

Incidence and Mortality Summary

	Female
Invasive Cases	84
WY Incidence	21.6
US Incidence	28.6
Cancer Deaths	14
WY Mortality	4.0
US Mortality	4.6

* indicates the state rate is significantly different than the national rate
NC = rate not calculated for under 5 cases/deaths

Stage at Diagnosis



The incidence and mortality rates Wyoming females for uterine cancer were both lower than the U.S. rate.

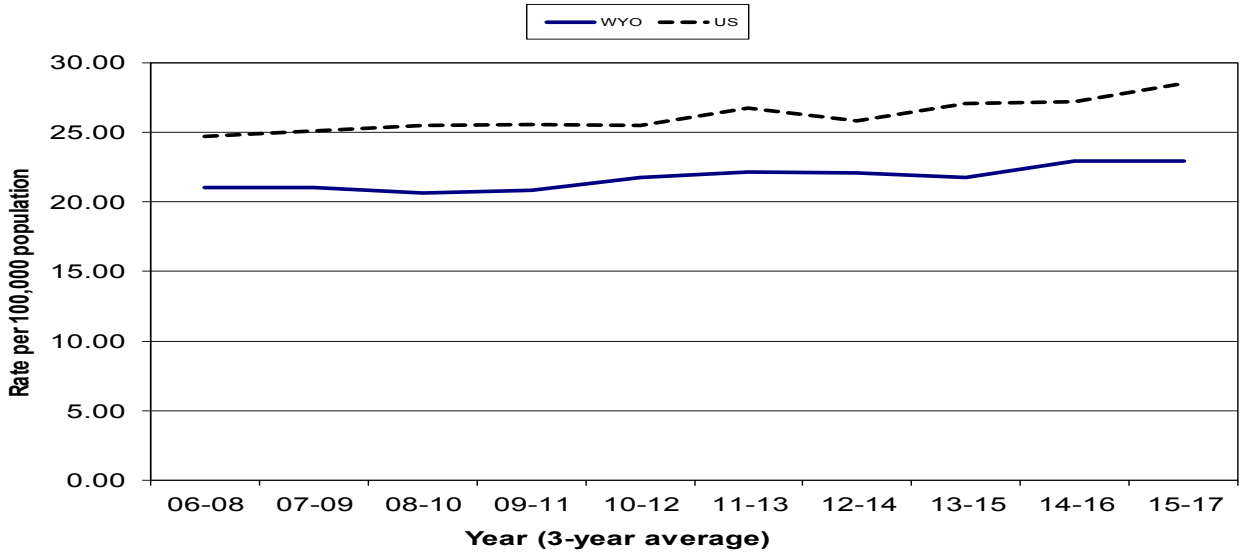
The Wyoming incidence trend remained level from 2014-2016, while the national rate increased slightly of the same time period.

There was only one case diagnosed in Wyoming women under the age of 40 in 2017.

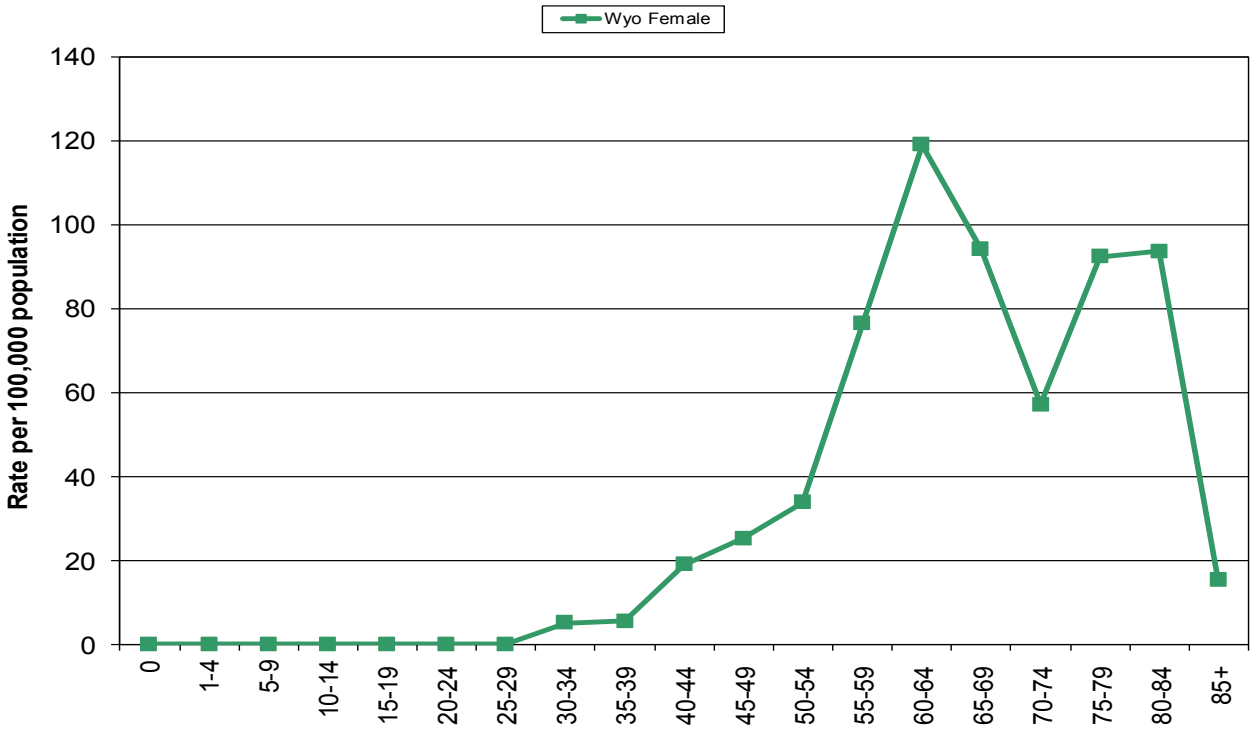
The percentage diagnosed as Local dropped substantially from 2016 (80%), while both Regional and Distant increased (11% and 5%, respectively). None of the changes were significant.

No statistically significant differences were found between the CHD rates and the state rate for incidence or mortality.

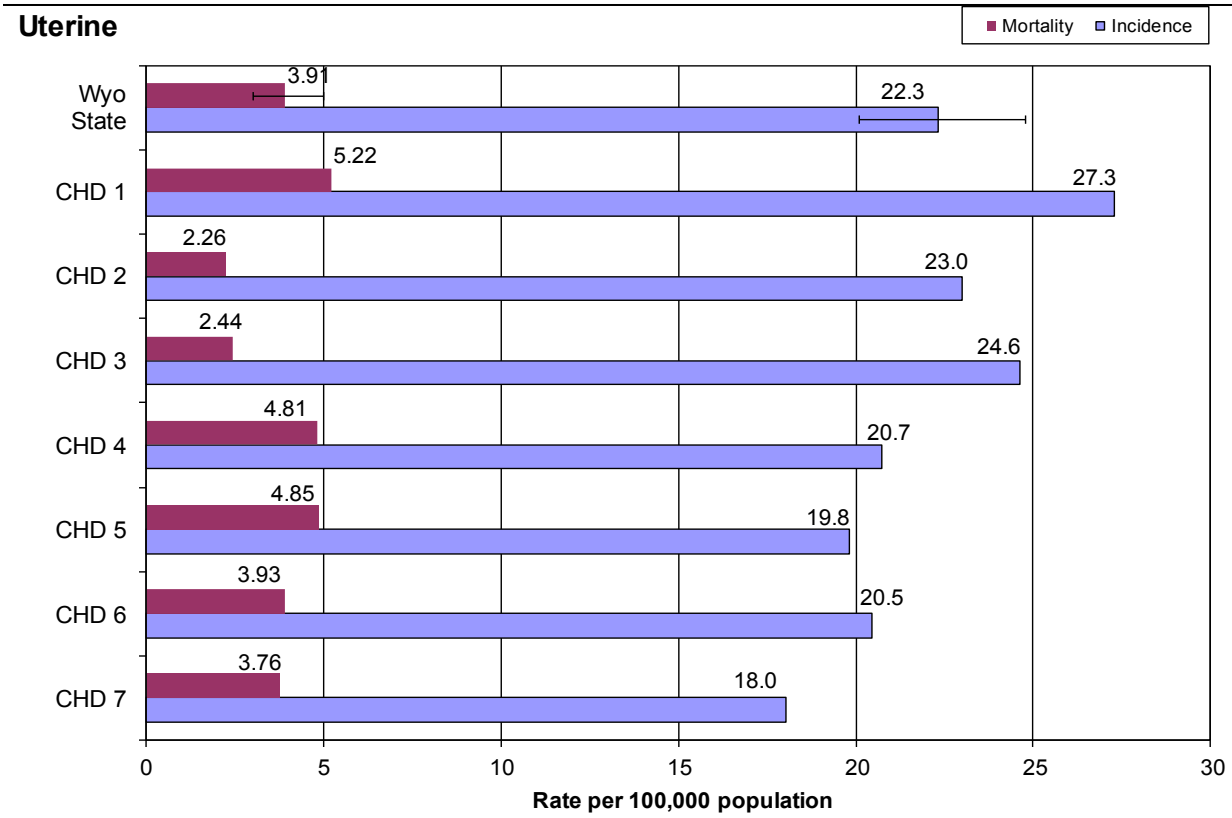
12-Year Incidence Trend



Age-Specific Incidence Rates - 2017



Cancer Health District Incidence and Mortality
5-Year Average, 2013-2017



Appendix A

References

Surveillance, Epidemiology, and End Results (SEER) Program (www.seer.cancer.gov) version 8.3.6. SEER*Stat Database: Incidence - SEER 21 Limited-Field Research Data + Hurricane Katrina Impacted Louisiana Cases, Nov 2018 Sub (2000-2016) <Katrina/Rita Population Adjustment> Linked To County Attributes - Total U.S., 1969-2017 Counties, National Cancer Institute, DCCPS, Surveillance Research Program, Cancer Statistics Branch, released April 2019, based on the November 2018 submission.

Wyoming Department of Administration and Information, Economic Analysis Division. Wyoming State and County Population. (http://eadiv.state.wy.us/eahome.htm)

Wyoming Vital Statistics Service, Wyoming Department of Health - (http://www.health.wyo.gov/rfhd/vital_records/index.html) (*Note: These data were supplied by the Vital Statistics Services, Wyoming Department of Health, Cheyenne, Wyoming. The Wyoming Vital Statistics Services was not involved in any analyses, interpretations, or conclusions).*

Age-Adjustment

Prior to data year 1999, the Wyoming Cancer Surveillance Program (WCSP) performed age-adjustment of cancer mortality rates using the 1940 standard population and a 10-year age group, or the 1970 standard population using 5-year age groups. Starting with the data year 1999, WCSP began using the Year 2000 standard population with 5-year age groups to calculate cancer mortality and cancer incidence rates.

The decision to use 5-year age groups was made to keep WCSP data calculations comparable to the national cancer reports published through SEER and the National Cancer Institute. The 5-year age group also enables cancer prevention programs to use Wyoming reports (e.g., Vital Records) as printed versus requesting specially calculated rates.

Age-adjusted rates should be used for comparative purposes only and should not be interpreted as the absolute risk of the disease or death. As can be seen in Chart A (below) and Chart B, (following page), the change in standard population affects the magnitude of the age-adjusted rates but not the trends of the rates. In general, the age-adjusted rate is only appropriate to track trends over time or to make comparisons among groups using the same population standard.

Chart A:

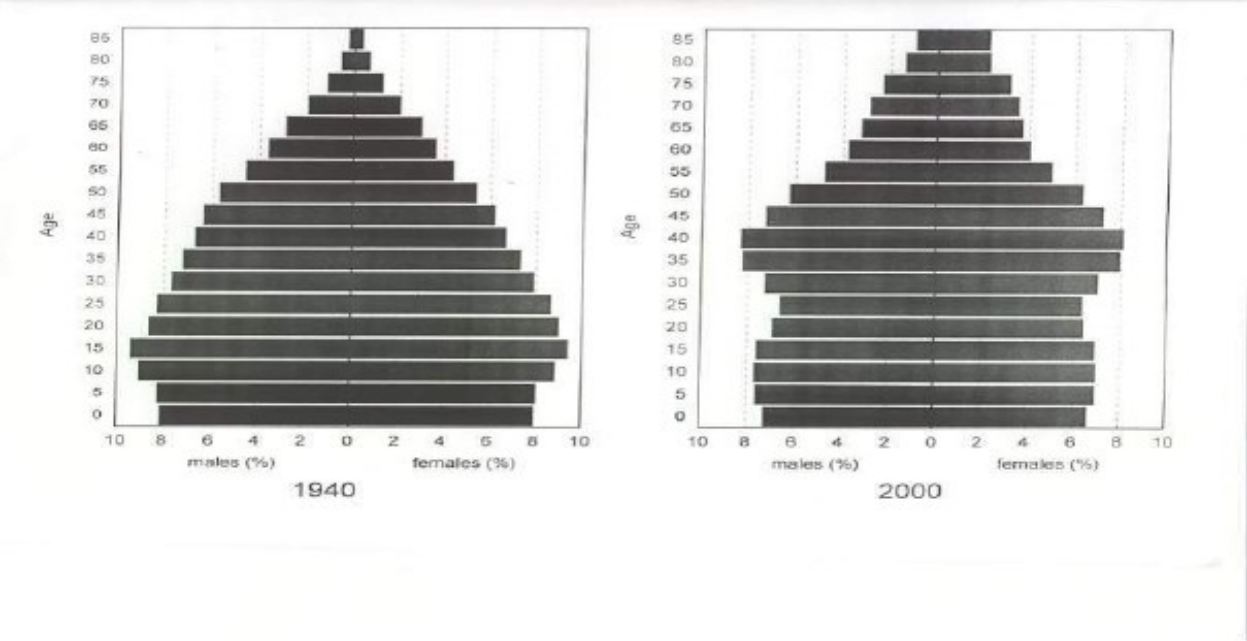
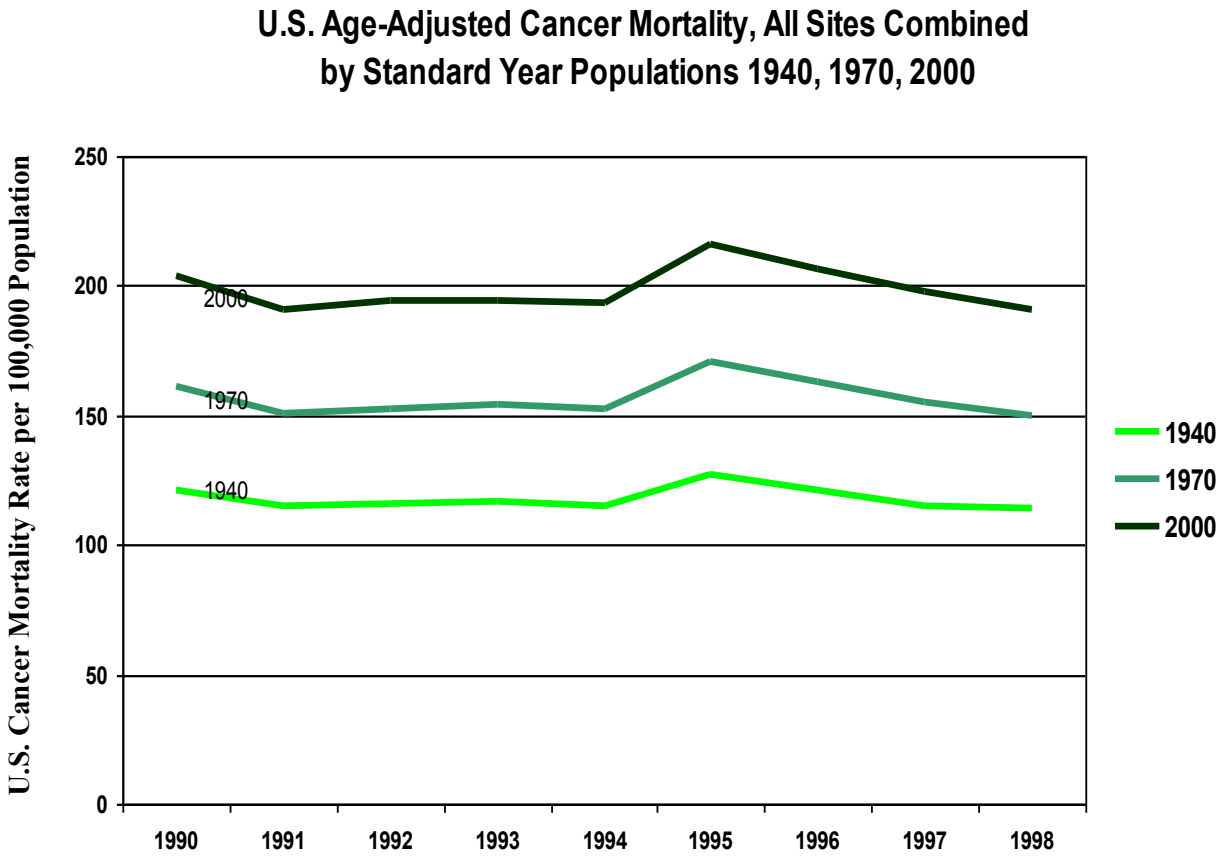


Chart B:


U.S. Age-Adjusted Cancer Mortality, All Sites Combined
by Standard Year Populations 1940, 1970, 2000
U.S. Cancer Mortality Rate per 100,000 Population
250
200
150
100
50
0
2000
1970
1940
1990
1991
1992
1993
1994
1995
1996
1997
1998
1940
1970
2000